

Log of Summer Math Practice

Name of student:

Current math level: Pre-Algebra

Instructions for Students:

1. Complete 2-3 worksheets per week
2. **Show all your work** when completing the worksheets and attach your work to the packets before turning them in.
3. All worksheets must be graded using the answer key provided.
4. Re- work and do corrections on the problems you miss initially.
5. You must have grades and **parent's signature** on the cover page of the packet.
6. Turn in the completed packet to your math teacher during the first week of school.

[illegible]

Week completed or dates/Dates	Page number	Grade (number of problems correct out of possible points)	Work shown/ attached Please circle Yes/No	Parent Signature
	1. 2. 3.		Yes / No	
	1. 2. 3.		Yes / No	
	1. 2. 3.		Yes / No	

We encourage you to complete 3 worksheets per week. Have fun!

Thank you for practicing your math skills over summer. We are proud of you. Great job!

Name _____

Fractions

Fractions Practice

Perform the indicated operation for each pair of fractions below.

1. $5\frac{3}{5} + 8\frac{1}{4}$

8. $7\frac{1}{2} + 9\frac{3}{5}$

15. $7\frac{3}{5} + 4\frac{7}{8}$

2. $15\frac{3}{4} \cdot 3\frac{3}{7}$

9. $\frac{3}{5} \div \frac{4}{5}$

16. $9\frac{1}{3} \div 2\frac{4}{12}$

3. $12\frac{1}{9} - 7\frac{5}{6}$

10. $11\frac{1}{2} - 2\frac{3}{7}$

17. $4\frac{4}{5} \cdot 3\frac{3}{4}$

4. $7\frac{1}{2} \div 4\frac{1}{6}$

11. $15\frac{5}{6} + 3\frac{4}{9}$

18. $4\frac{2}{15} - 1\frac{11}{12}$

5. $\frac{7}{9} \cdot \frac{3}{14}$

12. $9\frac{3}{5} \div 3\frac{6}{10}$

19. $4\frac{6}{3} + 6\frac{2}{3}$

6. $5\frac{5}{8} \cdot 5\frac{1}{3}$

13. $8 - 3\frac{2}{7}$

20. $6\frac{6}{45} - 2\frac{4}{45}$

7. $4\frac{2}{5} \div 3\frac{3}{10}$

14. $3\frac{1}{3} \cdot 10\frac{4}{5}$

21. $8\frac{6}{30} + 6\frac{5}{15}$

Name _____

Proportions

$$\frac{4}{6} = \frac{x}{36}$$

$$4 \cdot 36 = 6x$$

$$\frac{144}{6} = \frac{6x}{6}$$

$$24 = x$$

Solve each proportion using cross products..

1. $\frac{16}{48} = \frac{x}{100}$

9. $\frac{.14}{.07} = \frac{v}{1.5}$

2. $\frac{18}{24} = \frac{12}{p}$

10. $\frac{80}{z} = \frac{48}{20}$

3. $\frac{6}{6} = \frac{6x}{6}$

11. $\frac{18}{45} = \frac{2}{c}$

4. $\frac{1.8}{d} = \frac{3.6}{2.8}$

12. $\frac{8}{6} = \frac{w}{27}$

5. $\frac{8}{h} = \frac{5}{2}$

13. $\frac{1}{3} = \frac{x}{6}$

6. $\frac{144}{6} = \frac{6x}{6}$

14. $\frac{24}{12} = \frac{x}{6}$

7. $\frac{20}{30} = \frac{10}{x}$

15. $\frac{6}{t} = \frac{6}{4}$

8. $\frac{4}{5} = \frac{x}{5}$

16. $\frac{r}{3} = \frac{8}{8}$

Problems Using Proportions

If 2 liters of orange juice cost \$2.50, how much do 7 liters cost?

$$\frac{\text{liters}}{\text{cost}} = \frac{2}{2.50} = \frac{7}{x}$$

$$2x = 2.50 \cdot 7$$

$$\frac{2x}{2} = \frac{17.50}{2}$$

$$x = 8.75$$

7 liters cost \$8.75

Round answers to the nearest cent.

1. If 2 meters of fabric costs \$3.45, what should 7 meters cost?
2. A 16 ounce box of laundry detergent costs \$2.49. How many ounces should be in a box marked \$1.15?
3. Three pounds of chicken costs \$3.67. How much should 15 pounds cost?
4. If 7 ounces of cola costs \$.59. How much should 19 ounces cost?
5. Judy and Tomie traveled 237 miles in 8 hours. If they continue traveling at the same rate, how long will it take them to travel 654 miles?
6. Neil ran 5.5 miles in 1 hour. If he continues running at the same pace, how far will he have run in 7.25 hours?
7. Marty and Lance saw an advertisement for a 24 pound bag of oranges that costs \$5.98. How much should a 13 pound bag cost?
8. If a 12 pound turkey costs \$24.98, what should 20 pounds cost?
9. If 12 ounces of fish cost \$4.21, how much should 23 ounces cost?

Name _____

*Decimals***Multiplying Decimals**

(.4) (.06)	.4
└───┘	x .06
3 decimal places	.024

Multiply. Use mental math

1. 0.06×0.4

11. $(0.012)(0.7)$

2. $(1.2)(0.03)$

12. $(0.7)(0.011)$

3. $(0.9)(0.9)$

13. 0.03×0.6

4. 0.03×0.08

14. $(1.1)(0.11)$

5. 0.5×0.06

15. $(0.12)(.05)$

6. $(0.11)(0.05)$

16. 0.06×0.07

7. $(0.7)(0.07)$

17. $(0.10)(0.05)$

8. 0.12×0.04

18. $(0.012)(1.2)$

9. $(0.8)(0.005)$

19. $(0.6)(0.8)$

10. $(0.9)(0.002)$

20. $(0.02)(1.2)$

Name _____

Decimals

Dividing Decimals

Divide. Use mental math.

1. $0.36 \div 0.4$

12. $0.55 \div 0.005$

2. $5.4 \div 0.06$

13. $0.0027 \div 0.9$

3. $1.21 \div 0.11$

14. $100 \div 0.01$

4. $1.69 \div 0.13$

15. $0.132 \div 0.012$

5. $0.032 \div 0.4$

16. $7.2 \div 0.06$

6. $9.6 \div 0.12$

17. $0.064 \div 0.8$

7. $14.4 \div 1.2$

18. $0.0054 \div 0.006$

8. $0.012 \div 0.3$

19. $3.6 \div 0.009$

9. $0.56 \div 0.008$

20. $0.24 \div 0.008$

10. $0.072 \div 0.08$

21. $84 \div 1.2$

11. $2.6 \div 0.02$

22. $0.108 \div 0.09$

Name _____

Integers

Adding Integers with Like Signs

$$\begin{array}{l} 5 + 6 = 11 \text{ (positive)} \\ \boxed{} \\ 2 \text{ positives} \end{array}$$

$$\begin{array}{l} -4 + -11 = -15 \text{ (negative)} \\ \boxed{} \\ 2 \text{ negatives} \end{array}$$

Find each sum.

1. $5 + 6$

11. $90 + 52$

2. $-12 + -7$

12. $-13 + -34 + -67$

3. $32 + 53$

13. $23 + 45 + 65$

4. $-34 + -76$

14. $-43 + -36 + -21$

5. $142 + 374$

15. $13 + 45 + 84$

6. $-42 + -38$

16. $-16 + -16 + -16$

7. $45 + 8$

17. $15 + 41 + 7$

8. $-61 + -39$

18. $-2 + -124 + -438$

9. $23 + 72$

19. $12 + 45 + 396$

10. $-17 + -17$

20. $-12 + -37 + -48 + -361$

Name _____

Adding Integers with Unlike Signs

$$15 + \overset{\text{sign}}{\boxed{-26}} = -11$$

$$\downarrow \boxed{26 - 15} \uparrow$$

$$-13 + \overset{\text{sign}}{\boxed{27}} = 14$$

$$\downarrow \boxed{27 - 13} \uparrow$$

Find each sum.

1. $8 + -9$

2. $-18 + 6$

3. $56 + -7$

4. $-17 + 33$

5. $-213 + 56$

6. $-167 + 121$

7. $48 + -56$

8. $-61 + 61$

9. $672 + -423$

10. $-19 + 39$

11. $-73 + 42$

12. $419 + -673$

13. $-2,895 + 576$

14. $17,985 + -33,789$

15. $45,908 + -12,921$

16. $-563,937 + 76,412$

17. $-12 + 9$

18. $46 + -34$

19. $57 + -90$

20. $-87,121 + 86,323$



Name _____

*Integers***Subtracting Integers**

$$7 - 11 = 7 + -11 = -4$$



add the opposite

$$7 - -11 = 7 + 11 = 18$$



add the opposite

Simplify each subtraction expression by "adding the opposite" of the second number.

1. $17 - 26$

11. $56 - (-67)$

2. $-8 - 5$

12. $-19 - (-13)$

3. $45 - 23$

13. $78 - 28$

4. $-57 - (-34)$

14. $-749 - 629$

5. $-117 - 29$

15. $-594 - (-73)$

6. $19 - (-342)$

16. $1,897 - (-492)$

7. $232 - 154$

17. $9,767 - 2,672$

8. $-8 - (-28)$

18. $187 - (-48)$

9. $65 - 85$

19. $677 - 896$

10. $-87 - 129$

20. $897 - (-402)$

Changing Fractions to Decimals

$$\frac{1}{4} \Rightarrow 4 \overline{) 1.00} \begin{array}{r} .25 \\ 80 \\ \hline 20 \\ 20 \\ \hline 0 \end{array} \Rightarrow \frac{1}{4} = .25$$

terminating

$$\frac{1}{3} \Rightarrow 3 \overline{) 1.00} \begin{array}{r} .3333 \\ 9 \\ \hline 10 \\ 9 \\ \hline 10 \\ 9 \\ \hline 10 \end{array} \Rightarrow \frac{1}{3} = \overline{.3}$$

repeating

Change to decimals.

1. $\frac{3}{4}$

6. $\frac{2}{3}$

11. $\frac{4}{33}$

2. $\frac{6}{16}$

7. $\frac{25}{37}$

12. $\frac{13}{15}$

3. $\frac{18}{22}$

8. $\frac{11}{13}$

13. $\frac{12}{25}$

4. $\frac{5}{16}$

9. $\frac{23}{33}$

14. $\frac{1}{9}$

5. $\frac{7}{15}$

10. $3\frac{1}{4}$

15. $1\frac{3}{5}$

Multiplying and Dividing by 10, 100, 1000, etc.

$$23.76 \times 10 = 23.76 = 237.6$$

Move the decimal point to the right one place.

$$23.76 \times 100 = 23.76 = 2376$$

Move the decimal point to the right two places.

$$23.765 \times 1000 = 23.765 = 23765$$

Move the decimal point to the right three places

$$237.6 \div 1000 = 237.6 = .2376$$

Move the decimal point to the left three places.

Multiply or divide using mental math.

1. 3.456×10

12. $.092 \div 100$

2. $345.682 \div 100$

13. $.0442 \times 100,000$

3. 3.7823×1000

14. $4.881 \div 100,000$

4. $5463.23 \div 10,000$

15. 2.785×10

5. $67,000 \div 100$

16. $.0098 \div 100$

6. $.000999 \times 1,000$

17. $4.342 \times 100,000$

7. $67.009 \div 1000$

18. $45,000 \div 1000$

8. 81×100

19. 2.8×10

9. $23,098 \div 10,000$

20. $.91 \div 10,000$

11. $48.98 \times 10,000$

21. 32.949×100

Name _____

Skill: Changing Decimals to Fractions

Change each decimal to a fraction. Change to simplest form when possible.

1. $.25 =$

2. $.05 =$

3. $.12 =$

4. $.88 =$

5. $.015 =$

6. $.250 =$

7. $.02 =$

8. $.15 =$

9. $.75 =$

10. $.35 =$

11. $.125 =$

12. $.825 =$

13. $.18 =$

14. $.60 =$

15. $.20 =$

16. $.225 =$

Total Problems 16 Problems Correct _____

Order of Operations with Real Numbers

$$-4 \cdot 3 + 2 = -12 + 2 = -10$$

$$2\frac{1}{3} \div (4 + 8) = \frac{7}{3} \div 12 = \frac{7}{3} \cdot \frac{1}{12} = \frac{7}{36}$$

Perform the indicated operations using order of operations rules.

1. $-25 \div 6 + 4\frac{1}{5}$

2. $\frac{2}{3}(-15 - 4)$

3. $-8 \div -2 + 5 \cdot -\frac{1}{2} - 25 \div 5$

4. $\frac{1}{2} [(-15 + 4) + (6 + 7) \div -3]$

5. $(9\frac{1}{3} + 4\frac{1}{3}) \div 6 - -12$

6. $\frac{(80 \div 4) + 25}{-12 + 35}$

7. $3[-3(2-10) - 5]$

8. $2 \cdot 3[5 + (4 \div 2)]$

9. $40 \div [(3 \cdot 3) - (36 \div 9)] + -81$

Name _____

Equations ✓

Open Sentences

$$\begin{array}{ll} \frac{1}{5} \cdot 10 = x & \frac{81}{9} - 12 = t \\ \frac{1}{5} \cdot \frac{10^2}{1} = x & 9 - 12 = t \\ 2 = x & -3 = t \end{array}$$

Evaluate each expression for the given value of the variable.

1. $\frac{15 + -7}{2} = r$

8. $\frac{-25 + 12}{3} + 6 = b$

2. $\frac{11 + 3}{7} = j$

9. $-\frac{2}{5} \div \frac{1}{15} + -3\frac{1}{3} = y$

3. $\frac{2 + -18}{4} = p$

10. $\frac{6 - 12}{3} + 4 = p$

4. $\frac{1}{5} \cdot -12 + -9 = w$

11. $\frac{2}{6} \cdot 13 - 6 = m$

5. $-7.5 \cdot 3.3 + 13 = g$

12. $4.34 + 2.22 \div 3 = q$

6. $1\frac{3}{5} \div \frac{15}{45} = f$

13. $-2 \cdot 5 - 6 = d$

7. $4 \cdot 3.61 - 16.8 = n$

14. $1 + 2.78 - 6.5 = z$

Name _____

Equations

Evaluating ExpressionsEvaluate the following if, $w = \frac{1}{2}$, $x = 3$, and $y = -4$

$$2x(2w + 2y) = 2 \cdot 3 [2(\frac{1}{2}) + 2(-4)] = 6(1 + -8) = 6(-7) = -42$$

1. $w(xw + xy)$

8. $3w + 4(x - y)$

2. $3w - 4x$

9. $w(x + y)$

3. $5(w - 2y)$

10. $wx + x - 6xy$

4. $y(w + 7)$

11. $wx(3w + 2y - 5)$

5. $8x + -13x$

12. $6w - (xy + 3)$

6. $6(w + -y)$

13. $4w - 7x + 3y - 2w$

7. $5w(2y + 3x)$

14. $12y(4y + 2w) + -2x$

Simplifying Expressions

$$3(x + 4y) = 3x + 3 \cdot 4y = 3x + 12y$$

Use the distributive property to expand the following expressions.

1. $-6(b + c)$

8. $2(3p - 5p)$

2. $3(w - 4)$

9. $7(-c + 6d)$

3. $2(x - 12)$

10. $3(x + y + z)$

4. $3(2 + r)$

11. $4(2r + 6y)$

5. $8(y + -2x)$

12. $3k(-xy + -5)$

6. $5(n + 13y)$

13. $-9(2x + 8)$

7. $5(2y + 5x)$

14. $12(2y + 5w)$

Name _____

Solving Addition Equations

$$1.6 = -3.6 + x$$

$$1.6 + 3.6 = -3.6 + 3.6 + x$$

$$5.2 = 0 + x$$

$$5.2 = x$$

Solve each equation for the given variable.

1. $x + -8 = 9$

8. $-35 = x + 35$

2. $w + 79 = -95$

9. $-\frac{1}{4} + x = -\frac{1}{4}$

3. $5 + c = -16$

10. $z + 4.2 = 9.1$

4. $-21 = t + 18$

11. $28 = c + (-14)$

5. $-14 + r = 23$

12. $x + -3\frac{3}{4} = -11\frac{1}{4}$

6. $3.5 = n + 4.6$

13. $-2,929 + t = 4,383$

7. $-2\frac{1}{2} + k = -2\frac{5}{7}$

14. $-4.5 = 9\frac{1}{2} + c$

Name _____

Equations

Solving Subtraction Equations

$$\begin{aligned}36 &= x - 9 \\36 &= x + 9 \\36 - 9 &= x + 9 - 9 \\28 &= x + 0 \\28 &= x\end{aligned}$$

Solve each equation for the given variable.

1. $x - 8 = 34$

8. $-15 = p - 5$

2. $-33 = m - 11$

9. $-\frac{1}{3} - g = -\frac{1}{3}$

3. $t - (-8) = 45$

10. $3.65 = n - 7$

4. $34 = b - (-2)$

11. $z - (-23.5) = -2.342$

5. $f - 16 = -32$

12. $a + -2\frac{1}{3} = -15\frac{1}{3}$

6. $-3.4 = h - 8.5$

13. $-2,547 = n - 6,634$

7. $-3\frac{2}{3} - k = -6\frac{3}{4}$

14. $-2.2 = 8\frac{4}{5} - d$

Name _____

Equations

Solving Multiplication Equations

$$\begin{aligned}5y &= -25 \\ 5y \div 5 &= -25 \div 5 \\ 1y &= -5 \\ y &= -5\end{aligned}$$

Solve each equation for the given variable.

1. $-7b = -77$

8. $4m = -2$

2. $-144 = 12b$

9. $.24t = 1.2$

3. $-15m = 15$

10. $-.0003 = .02c$

4. $36 = -6t$

11. $-12n = -56$

5. $3.5 = 7x$

12. $43\frac{1}{2} = -13d$

6. $-2.1 = -.7c$

13. $23.66 = 13r$

7. $1\frac{2}{3} = 9x$

14. $33k = -878$

Solving Division Equations

$$\frac{x}{2} = 8$$

$$2 \cdot \frac{x}{2} = 8 \cdot 2$$

$$x = 16$$

Solve each equation for the given variable.

1. $-15 = \frac{x}{3}$

8. $-12 = \frac{t}{4}$

2. $\frac{u}{4} = -36$

9. $\frac{x}{4.1} = 16$

3. $\frac{2}{3}c = -8$

10. $\frac{r}{17} = -23$

4. $.9 = \frac{k}{81}$

11. $-3 = \frac{1}{3}x$

5. $\frac{m}{6} = 36$

12. $\frac{x}{8} = 56$

6. $\frac{1}{12}c = .6$

13. $\frac{3}{7}h = 4.5$

7. $\frac{1}{7}n = -28$

14. $\frac{2}{3}z = 33$

Name _____

Equations

Solving Equations with 2 Operations

$$\begin{aligned}3y - 6 &= 30 \\3y - 6 + 6 &= 30 + 6 \\3y &= 36 \\\frac{3y}{3} &= \frac{36}{3} \\y &= 12\end{aligned}$$

Solve each equation for the given variable. Express each answer in lowest terms.

1. $-8r - 7 = -24$

8. $13n - 13 = -12$

2. $5x - 5 = -10$

9. $23x - 12 = -33$

3. $9 = 3y + 5$

10. $-42 = 6b + 8$

4. $12 = 6c - 4$

11. $16 + 4y = -32$

5. $-23 = 3e - (-9)$

12. $16 + \frac{r}{2} = -11$

6. $16 = -2v + 9$

13. $2x - 5 = 16$

7. $\frac{3y}{4} = 12$

14. $11 = 3y - 10$

Solving Equations Using the Distributive Property

$$3(c - 4) = 15$$

$$3c - 12 = 15$$

$$3c - 12 + 12 = 15 + 12$$

$$\frac{3c}{3} = \frac{27}{3}$$

$$c = 9$$

Solve each equation for the given variable.

1. $3(C + 4) = -7$

8. $2(n + 6) = 80$

2. $35 = -7(z + 3)$

9. $3(8 - 6n) = 41$

3. $-7(t - 7) = -14$

10. $7(2x - 3) + 3 = 24$

4. $30 = 5\left(\frac{r}{5} - 3\right)$

11. $2(9x - 8) = -22$

5. $16(x - 3) = -33$

12. $-36 = 2(x + 4)$

6. $36 = 6(x - 5)$

13. $-4(6 + n) + 3 = 38$

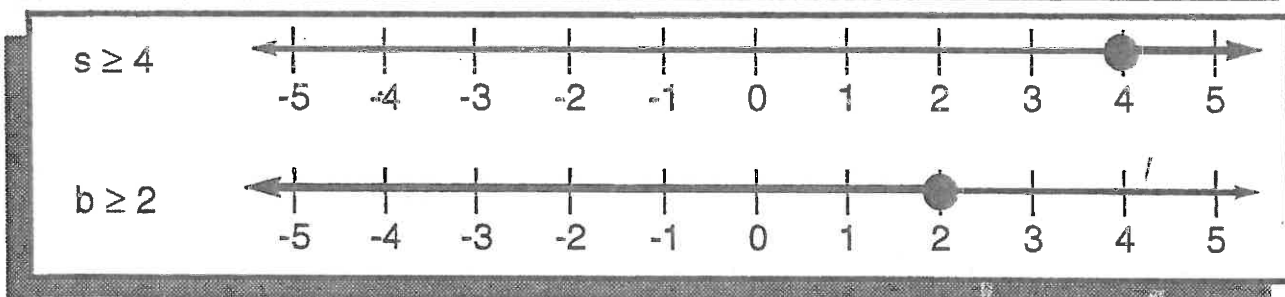
7. $5\left(3 - \frac{c}{7}\right) = 8$

14. $-23 = 5(t - 4)$

Writing Algebraic ExpressionsThree times a number decreased by 7 $3x - 7$ A number increased by 9 $x + 9$ The number divided by 3 $b \div 3$ or $\frac{b}{3}$ The product of 3 and 8 $3 \cdot 8$

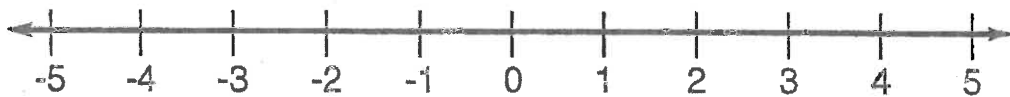
1. Eleven times the sum of a number and five times the number
2. Seven times the sum of twice a number and sixteen
3. Eleven times a number decreased by three
4. Two-fifths of a number minus seven
5. Three times the difference between x and 5
6. Five times a number plus six times the number
7. A number increased by three times the number
8. The quotient of a number and five decreased by two
9. One-third times a number increased by six
10. Four times the sum of a number and eight
11. Five increased by seven times a number
12. The product of six and a number increased by six

Number Lines

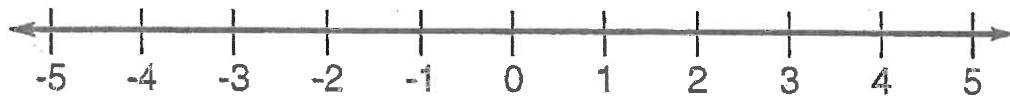


Graph each inequality on the number line.

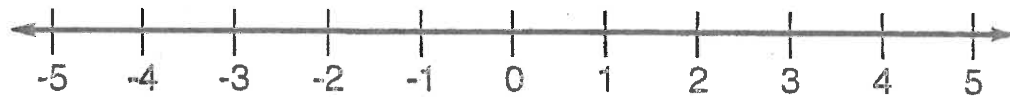
1. $a > 3$



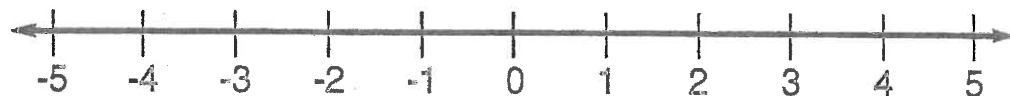
2. $b > -2$



3. $w \geq 3$



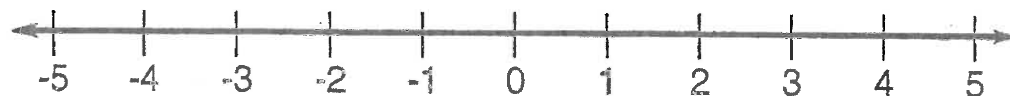
4. $k \leq -2$



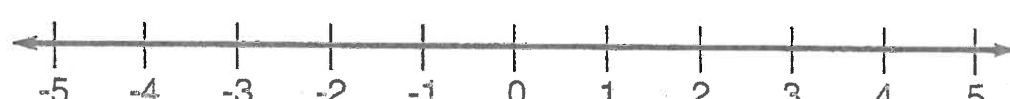
5. $n \geq -2$



6. $y \leq 4$



7. $r > \frac{2}{3}$



8. $x \geq -\frac{1}{2}$

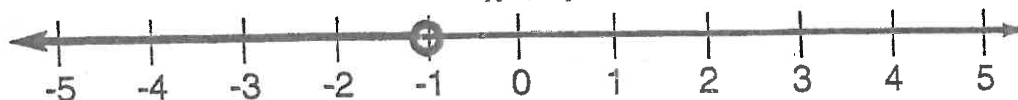


Name _____

Inequalities

Solving Inequalities with Addition and Subtraction

$$\begin{aligned}x + 7 &< 6 \\x + 7 - 7 &< 6 - 7 \\x &< -1\end{aligned}$$



Solve each inequality and graph on the number line.

1. $1 > 3 - d$

2. $f - 4 > -2$

3. $2 > y + 2$

4. $x - 4 \leq 2$

5. $-3 \leq 2 + g$

6. $2.3 \geq s + 3$

7. $d + \frac{3}{4} \geq \frac{1}{4}$

8. $7 + n \leq +8$

Solving Inequalities with Multiplication and Division

$$-\frac{2}{3}x \geq -2$$



$$-\frac{3}{2} \cdot -\frac{2}{3}x \leq -2 \left(-\frac{3}{2}\right)$$

$$x \leq -3$$



Change the sign when multiplying or dividing by a negative number.

Solve each inequality and graph on the number line.

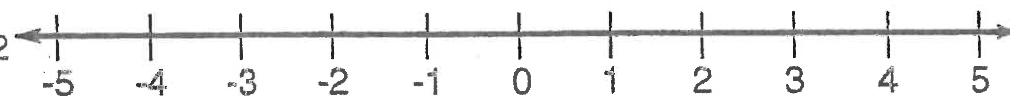
1. $12x > 24$



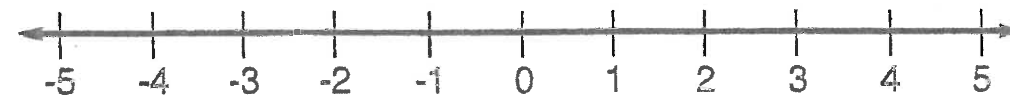
2. $-10n \leq -30$



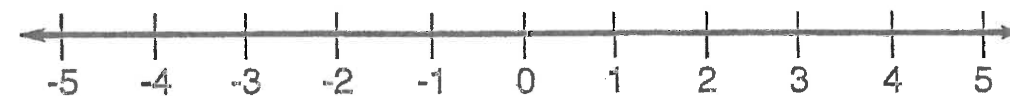
3. $1.8x \geq -5.2$



4. $-3x < 3$



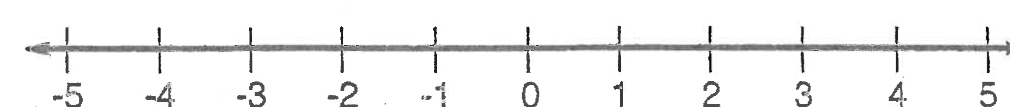
5. $n \geq -2$



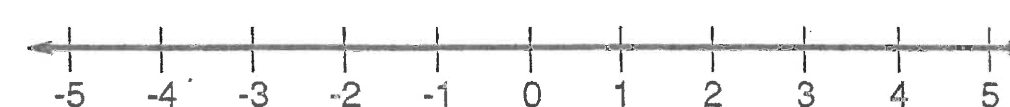
6. $-\frac{3}{4} \leq -3c$



7. $2 > \frac{2}{3}z$



8. $2x \geq \frac{1}{2}$



Answer Key

Name _____ Fractions

Multiplying Fractions

$$2\frac{1}{3} \cdot 1\frac{1}{2} = \frac{7}{3} \cdot \frac{3}{2} = \frac{21}{6} = 3\frac{3}{6} = 3\frac{1}{2}$$

1. $12\frac{1}{2} \cdot 8\frac{2}{5} = 105$ 7. $3\frac{1}{3} \cdot 9\frac{2}{3} = 32\frac{1}{2}$ 13. $8\frac{2}{5} \cdot 3\frac{1}{4} = 30$

2. $8\frac{3}{4} \cdot 1\frac{2}{3} = 12\frac{1}{2}$ 8. $7\frac{1}{3} \cdot 4\frac{1}{2} = 33$ 14. $15\frac{3}{4} \cdot 6\frac{2}{3} = 99$

3. $13\frac{1}{3} \cdot 2\frac{2}{5} = 32$ 9. $6\frac{2}{3} \cdot 3\frac{1}{5} = 23\frac{1}{3}$ 15. $8\frac{1}{5} \cdot 2\frac{1}{10} = 22$

4. $5\frac{5}{7} \cdot 9\frac{4}{5} = 56$ 10. $3\frac{3}{5} \cdot 2\frac{7}{8} = 10$ 16. $10\frac{1}{2} \cdot 7\frac{1}{3} = 77$

5. $7\frac{1}{8} \cdot 9\frac{1}{3} = 66\frac{1}{2}$ 11. $3\frac{2}{5} \cdot 5\frac{2}{5} = 21$ 17. $5\frac{4}{9} \cdot 2\frac{2}{3} = 14$

6. $4\frac{2}{3} \cdot 7\frac{1}{2} = 35$ 12. $4\frac{7}{12} \cdot 6\frac{2}{5} = 29\frac{1}{3}$ 18. $11\frac{2}{3} \cdot 4\frac{4}{5} = 56$

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KW 1009 Pre-Algebra

Name _____ Fractions

Dividing Fractions

$$1\frac{1}{3} \div 2\frac{1}{2} = \frac{4}{3} \div \frac{5}{2} = \frac{4}{3} \cdot \frac{2}{5} = \frac{8}{15}$$

1. $6\frac{2}{3} \div 3\frac{1}{2} = 2$ 7. $3\frac{1}{3} \div 1\frac{5}{6} = 2\frac{1}{7}$ 13. $2\frac{7}{10} \div 3\frac{9}{16} = \frac{3}{4}$

2. $4\frac{1}{2} \div 5\frac{1}{4} = \frac{6}{7}$ 8. $4\frac{3}{8} \div 2\frac{1}{12} = 2\frac{1}{10}$ 14. $2\frac{2}{5} \div 14\frac{2}{3} = \frac{1}{2}$

3. $2\frac{2}{3} \div 4\frac{1}{5} = \frac{8}{15}$ 9. $9\frac{2}{3} \div 2\frac{1}{3} = 4\frac{1}{3}$ 15. $3\frac{1}{2} \div 4\frac{1}{3} = \frac{31}{20}$

4. $6\frac{2}{3} \div 4\frac{1}{3} = 1\frac{1}{2}$ 10. $7\frac{1}{2} \div 3\frac{3}{8} = 2$ 16. $3\frac{3}{4} \div 1\frac{1}{5} = 2\frac{1}{4}$

5. $8\frac{2}{3} \div 2\frac{1}{2} = 3\frac{1}{2}$ 11. $7\frac{2}{3} \div 1\frac{1}{4} = 6\frac{1}{3}$ 17. $9\frac{4}{5} \div 1\frac{1}{10} = 7$

6. $7\frac{2}{3} \div 1\frac{1}{10} = 4$ 12. $5\frac{2}{5} \div 4\frac{1}{2} = 1\frac{1}{3}$ 18. $3\frac{1}{3} \div 1\frac{1}{10} = 2$

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KW 1009 Pre-Algebra

Name _____ Fractions

Dividing Fractions

$$1\frac{1}{3} \div 2\frac{1}{2} = \frac{4}{3} \div \frac{5}{2} = \frac{4}{3} \cdot \frac{2}{5} = \frac{8}{15}$$

1. $7\frac{1}{3} \div 1\frac{1}{10} = 6$ 7. $9\frac{1}{3} \div 3\frac{1}{2} = 2\frac{1}{2}$ 13. $7\frac{1}{2} \div 8\frac{2}{3} = \frac{5}{7}$

2. $5\frac{1}{2} \div 8\frac{4}{5} = \frac{5}{8}$ 8. $11\frac{2}{3} \div 5\frac{1}{12} = 2$ 14. $9\frac{1}{3} \div 2\frac{1}{10} = 4$

3. $9\frac{2}{3} \div 3\frac{1}{3} = 2\frac{2}{3}$ 9. $7\frac{1}{3} \div 2\frac{2}{3} = 2\frac{2}{3}$ 15. $12\frac{1}{3} \div 1\frac{1}{10} = 12$

4. $8\frac{2}{3} \div 2\frac{1}{10} = 4$ 10. $9\frac{2}{3} \div 1\frac{1}{10} = 6$ 16. $10\frac{1}{3} \div 1\frac{1}{10} = 6$

5. $3\frac{2}{3} \div 3\frac{1}{12} = 1$ 11. $12\frac{2}{3} \div 2\frac{7}{10} = 4\frac{2}{3}$ 17. $13\frac{2}{3} \div 5\frac{1}{2} = 2\frac{1}{2}$

6. $8\frac{2}{3} \div 2\frac{1}{12} = 4$ 12. $8\frac{1}{3} \div 4\frac{1}{3} = 2$ 18. $3\frac{2}{3} \div 3\frac{1}{3} = 1\frac{1}{3}$

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KW 1009 Pre-Algebra

Name _____ Fractions

Fractions Practice

Perform the indicated operation for each pair of fractions below.

1. $5\frac{2}{3} + 8\frac{1}{2} = 13\frac{7}{6}$ 7. $7\frac{1}{2} + 9\frac{2}{3} = 17\frac{1}{10}$ 15. $7\frac{2}{3} + 4\frac{1}{6} = 12\frac{1}{6}$

2. $15\frac{1}{2} \cdot 3\frac{2}{3} = 54$ 8. $\frac{2}{3} + \frac{1}{6} = \frac{3}{4}$ 16. $9\frac{1}{3} + 2\frac{1}{2} = 4$

3. $12\frac{1}{3} - 7\frac{2}{3} = 4\frac{1}{3}$ 10. $11\frac{1}{2} - 2\frac{2}{3} = 9\frac{1}{4}$ 17. $4\frac{1}{5} \cdot 3\frac{2}{3} = 18$

4. $7\frac{1}{2} \div 4\frac{1}{3} = 1\frac{1}{2}$ 11. $15\frac{1}{3} \div 3\frac{1}{3} = 19\frac{1}{18}$ 18. $4\frac{1}{6} - 1\frac{1}{12} = 2\frac{1}{10}$

5. $\frac{7}{8} \cdot \frac{1}{4} = \frac{1}{8}$ 12. $9\frac{2}{3} \div 3\frac{1}{3} = 2\frac{2}{3}$ 19. $4\frac{1}{5} + 6\frac{2}{3} = 12\frac{2}{3}$

6. $5\frac{1}{3} \cdot 5\frac{1}{3} = 30$ 13. $8 - 3\frac{2}{3} = 4\frac{1}{3}$ 20. $6\frac{1}{3} - 2\frac{1}{3} = 4\frac{2}{3}$

7. $4\frac{2}{3} \div 3\frac{1}{3} = 1\frac{1}{3}$ 14. $5\frac{1}{2} - 3\frac{1}{2} = 36$ 21. $8\frac{1}{3} \div 6\frac{2}{3} = 14\frac{6}{15}$

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KW 1009 Pre-Algebra

Answer Key

Name _____ Ratios, Proportions and Percents

Proportions

$$\begin{aligned} \frac{4}{6} &= \frac{x}{36} \\ 4 \cdot 36 &= 6x \\ \frac{144}{6} &= \frac{6x}{6} \\ 24 &= x \end{aligned}$$

1. $\frac{18}{48} = \frac{x}{100}$ $x = 33\frac{1}{2}$
2. $\frac{18}{24} = \frac{12}{p}$ $p = 16$
3. $\frac{6}{8} = \frac{6x}{6}$ $x = 1$
4. $\frac{1.8}{6} = \frac{3.6}{d}$ $d = 1.4$
5. $\frac{8}{h} = \frac{5}{2}$ $h = 3\frac{1}{5}$
6. $\frac{144}{6} = \frac{6x}{6}$ $x = 24$
7. $\frac{20}{30} = \frac{10}{x}$ $x = 15$
8. $\frac{4}{6} = \frac{x}{6}$ $x = 4$
9. $\frac{14}{97} = \frac{v}{1.5}$ $v = 3$
10. $\frac{80}{2} = \frac{48}{z}$ $z = 33\frac{1}{3}$
11. $\frac{18}{45} = \frac{2}{c}$ $c = 5$
12. $\frac{8}{6} = \frac{x}{27}$ $w = 36$
13. $\frac{1}{3} = \frac{x}{6}$ $x = 2$
14. $\frac{24}{12} = \frac{x}{6}$ $x = 12$
15. $\frac{6}{1} = \frac{6}{t}$ $t = 4$
16. $\frac{1}{5} = \frac{8}{r}$ $r = 3$

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33

KW 1009 Pre-Algebra

Name _____ Ratios, Proportions and Percents

Problems Using Proportions

If 2 liters of orange juice cost 2.50, how much do 7 liters cost?

$$\begin{aligned} \frac{2}{2.50} &= \frac{7}{x} \\ 2x &= 2.50 \cdot 7 \\ \frac{2x}{2} &= \frac{17.50}{2} \quad x = 8.75 \\ 7 \text{ liters cost } \$8.75 \end{aligned}$$

1. If 2 meters of fabric costs \$3.45, what should 7 meters cost? **\$12.08**
2. A 16 ounce box of laundry detergent costs \$2.49. How many ounces should be in a box marked \$1.15? **7.4 oz.**
3. Three pounds of chicken costs \$3.67. How much should 15 pounds cost? **\$18.35**
4. If 7 ounces of cola costs \$.59. How much should 19 ounces cost? **\$1.60**
5. Judy and Tomie traveled 237 hours in 8 hours. If they continue traveling at the same rate, how long will it take them to travel 654 miles? **22 hrs.**
6. Neil ran 5.5 miles in 1 hour. If he continues running at the same pace, how far will he have run in 7.25 hours? **39.88 mi.**
7. Marty and Lance saw an advertisement for a 24 pound bag of oranges that costs \$5.98. How much should a 13 pound bag cost? **\$3.24**
8. If a 12 pound turkey costs \$24.98, what should 20 pounds cost? **\$41.63**
9. 12 ounces of fish cost \$4.21. How much should 23 ounces cost? **\$8.07**

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34

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Name _____ Ratios, Proportions and Percents

Percents

Fraction to percent	Decimal to percent
$\frac{1}{2} = 50\% = \frac{1}{2} = \frac{50}{100}$	$.535 = 53.5\%$
$100 = 2x$ $50 = x$ $\frac{1}{2} = 50\%$	When converting a decimal to a percent, move the decimal 2 places to the right.

Write each expression as a percent.

1. $\frac{5}{46} = 10.87\%$
2. $2.392 = 239.2\%$
3. $2.3838 = 238.38\%$
4. $\frac{7}{15} = 46.7\%$
5. $3.293 = 329.3\%$
6. $17.3839 = 1738.39\%$
7. $11.6 = 1160\%$
8. $412.32 = 41232\%$
9. $\frac{12}{17} = 70.59\%$
10. $\frac{11}{23} = 47.83\%$
11. $4.34 = 434\%$
12. $\frac{4}{13} = 30.77\%$

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35

KW 1009 Pre-Algebra

Name _____ Ratios, Proportions and Percents

Percents

$$\begin{aligned} 80\% &= \frac{80}{100} = \frac{8}{10} = \frac{4}{5} \\ 51.5\% &= \frac{51.5}{100} = \frac{515}{1000} = \frac{21}{40} \end{aligned}$$

Write each percent as a fraction and each fraction as a percent.

1. $4\frac{5}{46} = 410.9\%$
2. $8.6\% = \frac{43}{500}$
3. $4.934\% = \frac{2467}{50000}$
4. $4\frac{5}{46} = 410.9\%$
5. $.98\% = \frac{49}{5000}$
6. $564.89\% = \frac{56489}{10000}$
7. $12.4\% = \frac{31}{250}$
8. $5.75\% = \frac{23}{400}$
9. $23.7\% = \frac{237}{1000}$
10. $21.98\% = \frac{1099}{5000}$
11. $7\frac{1}{23} = 717.4\%$
12. $3\frac{7}{17} = 372.7\%$
13. $2.98\% = \frac{149}{5000}$
14. $21\frac{7}{32} = 2121.9\%$
15. $6\frac{1}{2} = 650\%$
16. $2\frac{5}{7} = 271\%$

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36

KW 1009 Pre-Algebra

Answer Key

Name _____ Decimals

Subtracting Decimals

$$\begin{array}{r} 13.50 \\ - 4.21 \\ \hline 9.29 \end{array}$$

1. $4.7 - 2.3 = 2.4$
2. $24.34 - 23.19 = 1.15$
3. $84.87 - 78.45 = 6.42$
4. $85.76 - 34.65 = 51.11$
5. $342.43 - 259.24 = 83.19$
6. $74.81 - 61.92 = 12.89$
7. $\$54.68 - \$23.78 = \$30.90$
8. $7.435 - .0345 = 7.4005$
9. $43.50 - .015 - 3.2 = 40.285$
10. $56.40 - .043 = 56.357$
11. $756.84 - 31.343 = 725.497$
12. $34245.34 - 28674.87 = 5570.47$
13. $82.72 - 43.658 = 39.062$
14. $954.34 - 657.56 = 296.78$
15. $843.44 - 22.39 = 821.05$
16. $84.8 - 44.87 = 39.93$
17. $93.76 - 8.67 = 85.09$
18. $6.56 - .654 = 5.906$
19. $254.54 - 6.45 = 248.09$
20. $39.43 - 15.34 = 24.09$

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Name _____ Decimals

Multiplying Decimals

$$\begin{array}{r} (.6) (.07) \\ \times .07 \\ \hline 3 \text{ decimal places} \end{array}$$

1. $(.004) (8) = 0.032$
2. $(.051) (.006) = 0.000306$
3. $(340) (.02) = 6.8$
4. $(9.4) (3) = 28.2$
5. $(4.52) (6) = 27.12$
6. $(3.28) (12.8) = 41.984$
7. $(.016) (3.8) = 0.0608$
8. $(.004) (4) (.04) = 0.00064$
9. $(1.4) (.978) (.07) = 0.095844$
10. $(.05) (.17) (.002) = 0.000017$
11. $(.34) (.12) (.104) = 0.0042432$
12. $(11.9) (.02) (3.09) = 0.73542$
13. $(12.3) (5.81) (.06) = 4.28778$
14. $(4) (.112) = 0.448$
15. $(12.89) (.331) = 4.26659$
16. $(3.906) (12.12) = 47.34072$
17. $(2.09) (.005) = 0.01045$
18. $(18.92) (.4) (.32) = 2.42176$
19. $(.012) (6) (.05) = 0.0036$
20. $(8) (.342) (.02) = 0.05472$

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KW 1009 Pre-Algebra

Name _____ Decimals

Multiplying Decimals

$$\begin{array}{r} (.4) (.06) \\ \times .06 \\ \hline 3 \text{ decimal places} \end{array}$$

Multiply. Use mental math.

1. $0.06 \times 0.4 = 0.024$
2. $(1.2) (0.03) = 0.036$
3. $(0.9) (0.9) = 0.81$
4. $0.03 \times 0.08 = 0.0024$
5. $0.5 \times 0.06 = 0.03$
6. $(0.11) (0.05) = 0.0055$
7. $(0.7) (0.07) = 0.049$
8. $0.12 \times 0.04 = 0.0048$
9. $(0.8) (0.005) = 0.004$
10. $(0.9) (0.002) (.005) = 0.0018$
11. $(0.012) (0.7) = 0.0084$
12. $(0.7) (0.011) = 0.0077$
13. $0.03 \times 0.6 = 0.018$
14. $(1.1) (0.11) = 0.121$
15. $(0.12) (.05) = 0.006$
16. $0.06 \times 0.07 = 0.0042$
17. $(0.10) (0.05) = 0.005$
18. $(0.012) (1.2) = 0.0144$
19. $(0.6) (0.8) = 0.48$
20. $(0.02) (1.2) = 0.024$

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KW 1009 Pre-Algebra

Name _____ Decimals

Dividing Decimals

$$\begin{array}{r} .0173613 \div .33 = 33 \overline{)01.73613} \\ \underline{185} \\ 186 \\ \underline{186} \\ 201 \\ \underline{198} \\ 33 \\ \underline{33} \\ 0 \end{array}$$

1. $12.63 \div 9 = 1.403$
2. $3.58 \div 2.5 = 1.432$
3. $9.434 \div 3.03 = 3.11353$
4. $42.78 \div .187 = 228.77005$
5. $8.3006 \div 5.2 = 1.598$
6. $1.35 \div .07 = 19.285714$
7. $12.257 \div 5.8 = 2.1130517$
8. $3.908 \div 3.2 = 1.22125$
9. $7.76 \div 1.2 = 6.46$
10. $6.56 \div .16 = 41$
11. $.0135 \div 4.5 = 0.003$
12. $.483 \div .22 = 2.1954$
13. $9.414 \div 3.3 = 2.8527$
14. $16.73 \div .12 = 139.416$
15. $.1927 \div .0543 = 3.5488029$
16. $9.54 \div 3.03 = 3.1485$

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KW 1009 Pre-Algebra

Answer Key

Name _____ Decimals

Dividing Decimals

Divide. Use mental math.

1. $0.36 \div 0.4 = 0.9$
2. $5.4 \div 0.06 = 90$
3. $1.21 \div 0.11 = 11$
4. $1.69 \div 0.13 = 13$
5. $0.032 \div 0.4 = 0.08$
6. $9.6 \div 0.12 = 80$
7. $14.4 \div 1.2 = 12$
8. $0.012 \div 0.3 = 0.04$
9. $0.56 \div 0.008 = 70$
10. $0.072 \div 0.08 = 0.9$
11. $2.6 \div 0.02 = 130$
12. $0.55 \div 0.005 = 110$
13. $0.0027 \div 0.9 = 0.003$
14. $100 \div 0.01 = 10,000$
15. $0.132 \div 0.012 = 11$
16. $7.2 \div 0.06 = 120$
17. $0.064 \div 0.8 = 0.08$
18. $0.0054 \div 0.006 = 0.9$
19. $3.6 \div 0.009 = 400$
20. $0.24 \div 0.008 = 30$
21. $84 \div 1.2 = 70$
22. $0.108 \div 0.09 = 1.2$

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25

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Name _____ Decimals

Practice with Decimals

1. $2.62 \div .54 = 4.851$
2. $31.25 \div 23.5 = 54.75$
3. $(9.9)(2.03) = 20.097$
4. $8726 \div 2.84 = 3072.5352$
5. $1.32 \div 1.22 = 1.0819672$
6. $6.55 \div .08 = 6.63$
7. $12.76 \div 7.2 = 5.58$
8. $(3.2)(4.065) = 13.008$
9. $21.7 \div 15.9 = 5.8$
10. $.6 \div .09 + 1.75 = 2.44$
11. $(2.5)(3.4)(4.4) = 37.4$
12. $87.21 - 23.98 + 11.12 = 74.35$
13. $(.03)(.23)(1.3) = 0.00897$
14. $23.65 \div 22.81 = 1.0368259$
15. $2.34 \div .983 = 2.3804679$
16. $65.78 \div 54.90 = 120.68$
17. $432.42 - 237.89 = 194.53$
18. $12.938 + 11.548 = 24.486$
19. $789.987 - 231.093 = 558.894$
20. $(13.2)(34.9) = 460.68$
21. $1243.32 - 1032.90 = 210.42$
22. $5.23 \div 3.12 = 1.676282$

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26

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Name _____ Decimals

Practice with Decimals

1. $3.56 \div .73 = 4.8767123$
2. $22.59 \div 33.5 = 56.09$
3. $(4.3)(3.59) = 15.437$
4. $3496 \div 3.549 = 985.06621$
5. $7.459 \div 2.459 = 3.0333468$
6. $7.546 \div .0958 = 7.6418$
7. $15.54 - 8.34 = 7.2$
8. $(6.5)(5.304) = 34.476$
9. $43.7 - 34.5 = 9.2$
10. $.8 \div .07 + 3.73 = 4.6$
11. $(5.5)(2.6)(4.0) = 57.2$
12. $33.54 - 22.66 + 23.43 = 24.41$
13. $(2.3)(3.04)(3.46) = 24.19232$
14. $84.34 \div 65.76 = 1.2825425$
15. $4.33 \div .393 = 11.017811$
16. $54.34 \div 31.98 = 86.32$
17. $843.21 - 342.03 = 501.18$
18. $23.434 \div 23.403 = 46.837$
19. $345.765 - 237.405 = 108.36$
20. $(23.4)(3.9) = 91.26$
21. $1465.65 - 1253.42 = 212.23$
22. $6.37 \div 6.50 = 0.98$

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27

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Name _____ Decimals

Problem Solving With Decimals

Marilyn and Mackie decided to go to the beach. They went to a grocery store and bought some sandwiches for \$5.67, a gallon of fruit punch for \$2.31, and a bag of potato chips for \$1.21. How much did they spend altogether?

$\$5.67 + \$2.31 + \$1.21 =$	$\$5.67$	} each grocery item
	$\$2.31$	
	$\$1.21$	
	$\$9.19$	total

1. Wilson and Linda went to the dress store to buy Linda a new dress. The dress that Linda picked out costs \$95.00. If the price was reduced by \$13.68, how much will Linda pay? **\$ 81.32**
2. Norman's credit card bill was \$23.43 for January, \$65.98 for February, and \$21.80 for March. What were his total charges for the first three months of the year? **\$ 111.31**
3. Faith went to her favorite store and bought a sweater for \$82.95. She then went to a shoe store and bought a pair of shoes for \$87.34. How much money did Faith spend altogether? **\$ 170.29**
4. Lamar loves to go fishing. Before his last trip he decided to buy a few more pieces of equipment. he bought a tackle box for \$23.98, a fishing pole for \$54.93, a life jacket for \$34.21, and an ice chest for \$121.28. How much did Lamar spend altogether? **\$ 234.40**
5. Nancy and Kathy decided to make a quilt instead of buying one. The materials for the quilt totaled \$45.87. The cost of a new quilt is \$78.98. How much money did they save? **\$ 33.11**
6. Joann loves to shop. On her last shopping trip she bought a dress for \$34.90, a pair of shoes for \$89.09, a hat for \$65.99, a coat for \$34.21, and a belt for \$12.99. How much did Joann spend altogether? **\$ 237.18**

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28

KW 1009 Pre-Algebra

Answer Key

Name _____ Ratios, Proportions and Percents

Percents

$$\begin{aligned} 50\% \text{ of } 40 &= \underline{\quad\quad} \\ \frac{50}{100} &= \frac{x}{40} \\ 100x &= 2000 \\ x &= 20 \end{aligned}$$

$$\begin{aligned} \underline{\quad\quad}\% \text{ of } 20 &= 10 \\ \frac{x}{100} &= \frac{10}{20} \\ 20x &= 1000 \\ x &= 50 \quad 50\% \end{aligned}$$

$$\begin{aligned} 40\% \text{ of } \underline{\quad\quad} &= 20 \\ \frac{40}{100} &= \frac{20}{x} \\ 40x &= 2000 \\ x &= 50 \end{aligned}$$

1. 20% of 12 = 2.4
2. 30% of 80 = 24
3. 16% of 85 = 13.6
4. 17% of 65 = 11.05
5. 45% of 50 = 22.5
6. 60% of 25 = 15
7. 25% of 40 = 10
8. 16.7% of 48 = 8
9. 50.8% of 65 = 33
10. 44.4% of 9 = 4
11. 34% of 100 = 34
12. 67% of 119.4 = 80
13. 20% of 375 = 75
14. 45% of 266.7 = 120
15. 12% of 633.3 = 76
16. 80% of 73.3 = 44

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37

KW 1009 Pre-Algebra

Name _____ Ratios, Proportions and Percents

Problems With Percents

A baseball team played 50 games. They won 50% of them. How many games did the team win?

$$\begin{aligned} 50\% \text{ of } 50 &= \underline{\quad\quad} \\ \frac{50}{100} &= \frac{x}{50} \\ 100x &= 2500 \\ x &= 25 \end{aligned}$$

1. In a group of 50 children, 18 have red shirts. What percent have red shirts? 36%
2. A test had 80 questions. Diane got 90% of them correct. How many problems did Diane get correct? 72
3. A soccer team played 32 games. They won 25% of them. how many games did the team win? 8 games
4. The regular price of a blouse is \$34.00. Find the amount of the discount and the reduced price if there is a 30% discount. \$10.20 discount / \$23.80 price
5. A puppy weighed 4.5 pounds at 5 weeks and 7.5 pounds at 8 weeks. What was the percent increase? 66.7%
6. Sam went to a restaurant and decided to give the waiter a 15% tip. If the bill is \$13.50, how much should Sam tip the waiter? \$2.03
7. John bought a new computer that costs \$85.00. The printer is 13% of the purchase price. Find the total cost including the printer. \$96.05
8. Sugar-free gum contains 40% less calories than regular gum. If a piece of regular gum contains 40 calories, how many calories does a piece of sugar-free gum contain? 24 calories

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38

KW 1009 Pre-Algebra

Name _____ Integers

Adding Integers with Like Signs

$$\begin{aligned} 5 + 6 &= 11 \text{ (positive)} \\ 2 \text{ positives} \end{aligned}$$

$$\begin{aligned} -4 + -11 &= -15 \text{ (negative)} \\ 2 \text{ negatives} \end{aligned}$$

1. $5 + 6 = 11$
2. $-12 + -7 = -19$
3. $32 + 63 = 95$
4. $-34 + -76 = -110$
5. $142 + 374 = 516$
6. $-42 + -38 = -80$
7. $45 + 8 = 53$
8. $-61 + -39 = -100$
9. $23 + 72 = 95$
10. $-17 + -17 = -34$
11. $80 + 62 = 142$
12. $-13 + -34 + -67 = -114$
13. $23 + 45 + 65 = 133$
14. $-43 + -36 + -21 = -100$
15. $13 + 45 + 84 = 142$
16. $-16 + -16 + -16 = -48$
17. $15 + 41 + 7 = 63$
18. $-2 + -124 + -438 = -564$
19. $12 + 45 + 396 = 453$
20. $-12 + -37 + -48 + -361 = -458$

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39

KW 1009 Pre-Algebra

Name _____ Integers

Adding Integers with Like Signs

$$\begin{aligned} 7 + 7 &= 14 \text{ (positive)} \\ 2 \text{ positives} \end{aligned}$$

$$\begin{aligned} -6 + -12 &= -18 \text{ (negative)} \\ 2 \text{ negatives} \end{aligned}$$

1. $7 + 8 = 15$
2. $-14 + -9 = -23$
3. $47 + 93 = 140$
4. $-21 + -34 = -55$
5. $213 + 375 = 588$
6. $-183 + -538 = -721$
7. $28 + 67 = 95$
8. $-12 + -68 = -80$
9. $34 + 46 = 80$
10. $-23 + -48 = -71$
11. $70 + 82 = 152$
12. $-21 + -22 + -41 = -84$
13. $54 + 63 + 82 = 199$
14. $-21 + -41 + -55 = -117$
15. $36 + 57 + 58 = 151$
16. $-18 + -34 + -59 = -111$
17. $21 + 22 + 23 = 66$
18. $-21 + -59 + -828 = -908$
19. $51 + 87 + 527 = 665$
20. $-13 + -67 + -78 + -832 = -990$

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40

KW 1009 Pre-Algebra

Name _____ Integers

Adding Integers with Unlike Signs

$$\begin{array}{r} \text{sign} \\ 15 + (-28) = -13 \\ \hline 28 - 15 \\ \hline \end{array}$$

$$\begin{array}{r} \text{sign} \\ -13 + 27 = 14 \\ \hline 27 - 13 \\ \hline \end{array}$$

Find each sum.

1. $8 + -9 = -1$

11. $-73 + 42 = -31$

2. $-18 + 8 = -10$

12. $419 + -573 = -154$

3. $58 + -7 = 51$

13. $-2,895 + 576 = -2,319$

4. $-17 + 33 = 16$

14. $17,885 + -33,789 = -15,904$

5. $-213 + 56 = -157$

15. $45,908 + -12,921 = 32,987$

6. $-187 + 121 = -66$

16. $-563,937 + 76,412 = -487,525$

7. $48 + -56 = -8$

17. $-12 + 9 = -3$

8. $-61 + 61 = 0$

18. $48 + -34 = 14$

9. $572 + -423 = 149$

19. $57 + -90 = -33$

10. $-19 + 39 = 20$

20. $-87,121 + 86,323 = -798$

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41

CD-3731 Pre-Algebra

Name _____ Integers

Adding Integers with Unlike Signs

$$\begin{array}{r} \text{sign} \\ 57 + (-67) = -10 \\ \hline 67 - 57 \\ \hline \end{array}$$

$$\begin{array}{r} \text{sign} \\ -16 + 29 = 13 \\ \hline 29 - 16 \\ \hline \end{array}$$

Find each sum.

1. $34 + -78 = -44$

11. $-6,807 + 4,262 = -2,545$

2. $-194 + 635 = 441$

12. $713 + -8,976 = -8,263$

3. $321 + -383 = -62$

13. $-23,895 + 5,863 = -18,032$

4. $-43 + 68 = 25$

14. $232,985 + -454,202 = -221,217$

5. $-343 + 439 = 96$

15. $87,998 + -78,952 = 9,046$

6. $-595 + 630 = 35$

16. $-112,956 + 565,453 = 452,497$

7. $88 + -34 = 54$

17. $-85,908 + 73,912 = -11,996$

8. $-99 + 94 = -5$

18. $57,980 + -41,978 = 16,002$

9. $850 + -828 = 22$

19. $57,908 + -84,512 = -26,604$

10. $-73 + 29 = -44$

20. $-84,154 + 89,343 = 5,189$

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42

CD-3731 Pre-Algebra

Name _____ Integers

Subtracting Integers

$$\begin{array}{r} 7 - 11 = 7 + -11 = -4 \\ \uparrow \quad \uparrow \\ \text{add the opposite} \end{array}$$

$$\begin{array}{r} 7 - -11 = 7 + 11 = 18 \\ \uparrow \quad \uparrow \\ \text{add the opposite} \end{array}$$

1. $17 - 26 = -9$

11. $56 - -67 = 123$

2. $-8 - 5 = -13$

12. $-19 - -13 = -6$

3. $45 - 23 = 22$

13. $78 - 28 = 50$

4. $-57 - -34 = -23$

14. $-749 - 629 = -1,378$

5. $-117 - 29 = -146$

15. $-594 - -73 = -521$

6. $19 - -342 = 361$

16. $1,897 - -492 = 2,389$

7. $232 - 154 = 78$

17. $9,767 - 2,672 = 7,095$

8. $-8 - -28 = 20$

18. $187 - -48 = 235$

9. $65 - 85 = -20$

19. $677 - 896 = -219$

10. $-87 - 129 = -216$

20. $897 - -402 = 1,299$

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43

KW 1009 Pre-Algebra

Name _____ Integers

Subtracting Integers

1. $7 - 16 = -9$

13. $-56 - -95 = 39$

2. $-18 - 6 = -24$

14. $-60 - 17 = -77$

3. $-45 - -45 = 0$

15. $319 - -749 = 1,068$

4. $-21 - -45 = 24$

16. $-625 - 117 = -742$

5. $-154 - 56 = -210$

17. $564 - -373 = 937$

6. $3 - -26 = 29$

18. $6,793 - -6,967 = 13,760$

7. $0 - 15 = -15$

19. $-8,774 - 8,834 = -17,608$

8. $-3 - -7 = 4$

20. $108,782 - -95,671 = 204,453$

9. $-5 - -57 = 62$

21. $-834 - -672 = -162$

10. $-47 - 56 = -103$

22. $-975,834 - -123,856 = -851,978$

11. $-36 - 69 = -105$

23. $-629,905 - -532,907 = -96,998$

12. $-23 - 56 = -79$

24. $897,342 - -402,231 = 1,299,573$

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44

KWP 1213 Mastering Pre-

Answer Key

Problem Solving With Fractions

A recipe calls for $\frac{3}{4}$ pound of raisins and $\frac{1}{2}$ pound of dates. How many pounds are needed in all? $\frac{3}{4} + \frac{1}{2} = 1\frac{1}{4}$

- A football team played 27 games and won $\frac{2}{3}$ of them.
How many games did the team win? 18
How many games did the team lose? 9
- A punch recipe calls for $\frac{2}{3}$ cup of apple juice, $\frac{1}{3}$ cup of orange juice, 1 cup of lemon juice, and $\frac{1}{2}$ cup of lime juice. How many cups of juice are needed to make this punch? $2\frac{1}{6}$
- Evie went to the grocery store to buy some cereal. A one-pound box of cereal costs \$2.25. A one-half pound box of cereal costs \$1.65. How much money would Evie save if she bought a 1 pound box of cereal instead of 2 one-half boxes? $\$1.05$
- Delaney wants to make a wedding cake. The recipe calls for $8\frac{1}{2}$ cups of flour. A 16-ounce bag contains 2 cups. How many bags of flour must Delaney buy in order to make her cake? 5
- If $2\frac{1}{2}$ pounds of apples cost \$2.35 and $2\frac{2}{3}$ pounds of strawberries cost \$2.50, which fruit is less expensive per pound? SAME
- A cookie recipe calls for $1\frac{1}{2}$ cups of flour, $1\frac{2}{3}$ cups of sugar, $2\frac{3}{4}$ cups of raisins, and $3\frac{1}{2}$ cups of walnuts. How many cups of dry ingredients are needed for this recipe? $9\frac{1}{4}$

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13

KW 1009 Pre-Algebra

Changing Fractions to Decimals

$$\frac{1}{4} = \frac{25}{100} = .25 \quad \text{terminating} \quad \frac{1}{3} = \frac{333}{1000} = .333 \quad \text{repeating}$$

Change to fractions.

- $\frac{3}{4} = 0.75$
- $\frac{2}{3} = 0.\overline{6}$
- $\frac{4}{33} = 0.\overline{12}$
- $\frac{25}{16} = 0.375$
- $\frac{25}{37} = 0.\overline{675}$
- $\frac{13}{15} = 0.\overline{86}$
- $\frac{18}{22} = 0.\overline{81}$
- $\frac{11}{13} = 0.\overline{846153}$
- $\frac{12}{25} = 0.48$
- $\frac{5}{16} = 0.3125$
- $\frac{23}{33} = 0.\overline{69}$
- $\frac{1}{9} = 0.\overline{1}$
- $\frac{7}{15} = 0.\overline{46}$
- $3\frac{1}{4} = 3.25$
- $1\frac{2}{3} = 1.\overline{6}$

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14

KW 1009 Pre-Algebra

Changing Fractions to Decimals

- $\frac{6}{9} = 0.\overline{6}$
- $\frac{6}{15} = 0.4$
- $\frac{30}{45} = 0.\overline{6}$
- $\frac{19}{57} = 0.\overline{3}$
- $\frac{57}{63} = 0.\overline{904761}$
- $\frac{21}{36} = 0.58\overline{3}$
- $\frac{10}{70} = 0.142857$
- $\frac{32}{36} = 0.\overline{8}$
- $\frac{56}{74} = 0.756$
- $\frac{13}{39} = 0.\overline{3}$
- $\frac{9}{36} = 0.25$
- $\frac{12}{18} = 0.\overline{6}$
- $\frac{8}{24} = 0.\overline{3}$
- $\frac{45}{72} = 0.625$
- $\frac{56}{63} = 0.\overline{8}$
- $\frac{8}{21} = 0.\overline{380952}$
- $\frac{35}{55} = 0.\overline{63}$
- $\frac{7}{49} = 0.142857$
- $\frac{6}{39} = 0.153846$
- $\frac{4}{36} = 0.\overline{1}$
- $\frac{16}{72} = 0.\overline{2}$

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15

KW 1009 Pre-Algebra

Rounding Decimals

Round 4.234 to the nearest tenth. $4.234 \approx 4.2$

Round 42.34812 to the nearest hundredth. $42.34812 \approx 42.35$

Round to the nearest whole number.

- 42.675 ≈ 43
- 29.78 ≈ 30
- 34.87 ≈ 35
- 21.098 ≈ 21
- 15.91 ≈ 16
- 78.412 ≈ 78
- 7.8346 ≈ 8
- 54.927 ≈ 55
- 2.72 ≈ 3
- 64.909 ≈ 65
- 1.19 ≈ 1
- 4.98 ≈ 5

Round to the nearest tenth.

- 33.897 ≈ 33.9
- 121.34 ≈ 121.3
- 32.777 ≈ 32.8
- 5.345 ≈ 5.3
- 1.908 ≈ 1.9
- 341.06 ≈ 341.1
- 1.23 ≈ 1.2
- 1.6578 ≈ 1.7
- 3.869 ≈ 3.9
- 41.564 ≈ 41.6
- 654.34 ≈ 654.3
- 111.111 ≈ 111.1

Round to the nearest hundredth.

- 212.656 ≈ 212.66
- 21.569 ≈ 21.57
- 2.6354 ≈ 2.64
- 241.560 ≈ 241.56
- 7.34587 ≈ 7.35
- 218.453 ≈ 218.45
- 12.1212 ≈ 12.12
- 430.234 ≈ 430.23
- 12.7689 ≈ 12.77
- 129.404 ≈ 129.40
- 6.435 ≈ 6.44
- 9.9999 ≈ 10.00

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16

KW 1009 Pre-Algebra

Answer Key

Name _____ Decimals

Multiplying and Dividing by 10, 100, 1000, etc.

$23.76 \times 10 \Rightarrow 237.6 \Rightarrow 237.6$
Move the decimal point to the right one place.

$23.76 \times 100 \Rightarrow 2376 \Rightarrow 2376$
Move the decimal point to the right two places.

$23.765 \times 1000 \Rightarrow 23765 \Rightarrow 23765$
Move the decimal point to the right three places.

$237.6 \div 1000 \Rightarrow 237.6 \Rightarrow 237.6$
Move the decimal point to the left three places.

1. $3.456 \times 10 = 34.56$
2. $345.682 \times 100 = 34,568.2$
3. $3.7823 \times 1000 = 3,782.3$
4. $5463.23 \div 10,000 = 0.546323$
5. $67,000 \div 100 = 670.00$
6. $.000889 \times 1,000 = 0.889$
7. $67.009 \div 1000 = 0.067009$
8. $81 \times 100 = 8,100$
9. $23.098 \div 10,000 = 2.3098$
11. $48.98 \times 10,000 = 489,800$
12. $.092 \div 100 = 0.00092$
13. $.0442 \times 100,000 = 4,420$
14. $4.881 \div 100,000 = 0.00004881$
15. $2.785 \times 10 = 27.85$
16. $.0098 \div 100 = 0.000098$
17. $4.342 \times 100,000 = 434,200$
18. $45,000 \div 1000 = 45.00$
19. $2.8 \times 10 = 28$
20. $.91 \div 10,000 = 0.000091$
21. $32.949 \times 100 = 3,294.9$

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KW 1009 Pre-Algebra

Name _____ Decimals

Adding Decimals

$13.3 + 7.23 =$	13.30
	$+ 7.23$
	20.53

1. $3.456 + 2.894 = 6.350$
2. $4.89 + 5.73 = 10.62$
3. $3.5 + 8.4 = 11.9$
4. $43.56 + 105.7 = 149.26$
5. $15.76 + 34.23 + 3.9 = 53.89$
6. $6.8 + 13.634 + 2.34 = 22.774$
7. $5.7 + 5.34 + 4.78 = 15.82$
8. $12.87 + 2.87 = 15.74$
9. $\$13.39 + \$7.40 = \$20.79$
10. $.017 + 13 = 13.017$
11. $5.02 + 5.20 = 10.22$
12. $9.91 + 2.734 + 8.41 = 21.054$
13. $121.9 + .736 = 122.636$
14. $17.438 + 4.82 = 22.258$
15. $322.815 + 6.876 = 329.691$
16. $5.87 + 4.87 + 3.908 = 14.748$
17. $3.83 + 45.90 + 5.00 = 54.73$
18. $5.94 + 5.32 = 11.26$
19. $6.41 + 3.99 = 10.4$
20. $2.987 + 451.90 = 454.887$

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18

KW 1009 Pre-Algebra

Name _____ Decimals

Adding Decimals

$11.2 + 6.12 =$	11.20
	$+ 6.12$
	17.32

1. $2.312 + 5.371 = 7.683$
2. $3.09 + 2.19 = 5.28$
3. $2.15 + 4.58 = 6.73$
4. $61.71 + 324.95 = 386.66$
5. $46.29 + 22.53 + 5.6 = 74.42$
6. $2.6 + 21.540 + 3.65 = 27.79$
7. $5.4 + 7.38 + 6.21 = 18.99$
8. $27.34 + 6.45 = 33.79$
9. $\$12.52 + \$8.32 = \$20.84$
10. $.032 + 37 = 37.032$
11. $3.43 + 5.45 = 8.88$
12. $5.66 + 7.34 + 6.90 = 19.90$
13. $281.7 + .796 = 282.496$
14. $23.431 + 5.34 = 28.771$
15. $654.595 + 3.650 = 658.245$
16. $6.29 + 9.95 + 6.332 = 22.572$
17. $8.45 + 95.20 + 6.34 = 108.99$
18. $5.37 + 7.37 = 12.74$
19. $8.22 + 8.41 = 16.63$
20. $5.372 + 371.52 = 376.892$

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19

KW 1009 Pre-Algebra

Name _____ Decimals

Subtracting Decimals

$17.2 - 5.10 =$	17.20
	$- 5.10$
	12.10

1. $13.2 - 6.7 = 6.5$
2. $13.3 - 12.4 = 0.9$
3. $62.1 - 33.29 = 28.81$
4. $76.34 - 47.30 = 29.04$
5. $325.34 - 235.34 = 90.00$
6. $55.23 - 47.29 = 7.94$
7. $\$21.73 - \$16.43 = \$5.30$
8. $3.239 - .06 = 3.179$
9. $23.28 - .002 - 1.2 = 22.078$
10. $35.63 - .021 = 35.609$
11. $543.43 - 35.342 = 508.088$
12. $436.82 - 328.56 = 108.26$
13. $75.034 - 22.439 = 52.595$
14. $439.02 - 232.76 = 206.26$
15. $756.98 - 32.43 = 724.55$
16. $65.9 - 33.32 = 32.58$
17. $21.32 - 4.28 = 17.04$
18. $4.84 - .476 = 4.364$
19. $121.32 - 4.34 = 116.98$
20. $34.32 - 12.43 = 21.89$

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20

KW 1009 Pre-Algebra

Answer Key

Name _____ Skill: Changing Fractions and Mixed Numbers to Decimals

Change the following fractions or mixed numbers to decimals.

1. $\frac{1}{4} = .25$ 2. $\frac{2}{5} = .4$ 3. $\frac{49}{50} = .98$ 4. $\frac{17}{10} = 1.7$ 5. $\frac{1}{5} = .2$

6. $\frac{7}{50} = .14$ 7. $\frac{2}{10} = .2$ 8. $\frac{31}{50} = .62$ 9. $\frac{13}{50} = .26$ 10. $\frac{9}{10} = .9$

11. $\frac{3}{5} = .6$ 12. $\frac{3}{4} = .75$ 13. $\frac{7}{20} = .35$ 14. $\frac{7}{25} = .28$ 15. $\frac{3}{10} = .3$

16. $1\frac{2}{5} = 1.4$ 17. $3\frac{31}{50} = 3.62$ 18. $1\frac{43}{50} = 1.86$ 19. $4\frac{4}{25} = 4.16$

20. $4\frac{4}{8} = 4.5$ 21. $5\frac{1}{5} = 5.2$ 22. $4\frac{1}{4} = 4.25$ 23. $2\frac{8}{32} = 2.25$

Total Problems 23 Problems Correct _____

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Name _____ Skill: Changing Fractions and Mixed Numbers to Decimals

Change the following fractions or mixed numbers to decimals.

1. $\frac{3}{5} = .6$ 2. $\frac{3}{10} = .3$ 3. $\frac{3}{6} = .5$ 4. $\frac{4}{5} = .8$

5. $\frac{1}{8} = .125$ 6. $\frac{1}{10} = .1$ 7. $\frac{7}{8} = .875$ 8. $\frac{11}{20} = .55$

9. $\frac{2}{8} = .25$ 10. $\frac{12}{25} = .48$ 11. $\frac{1}{4} = .25$ 12. $\frac{11}{25} = .44$

13. $5\frac{6}{12} = 5.5$ 14. $4\frac{12}{24} = 4.5$ 15. $1\frac{4}{5} = 1.8$

16. $5\frac{2}{5} = 5.4$ 17. $4\frac{15}{30} = 4.5$ 18. $6\frac{7}{8} = 6.875$

Total Problems 18 Problems Correct _____

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Name _____ Skill: Changing Decimals to Fractions

Change each decimal to a fraction. Change to simplest form when possible.

1. $.25 = \frac{1}{4}$ 2. $.05 = \frac{1}{20}$ 3. $.12 = \frac{3}{25}$ 4. $.88 = \frac{22}{25}$

5. $.015 = \frac{3}{200}$ 6. $.250 = \frac{1}{4}$ 7. $.02 = \frac{1}{50}$ 8. $.15 = \frac{3}{20}$

9. $.75 = \frac{3}{4}$ 10. $.35 = \frac{7}{20}$ 11. $.125 = \frac{1}{8}$ 12. $.825 = \frac{33}{40}$

13. $.18 = \frac{9}{50}$ 14. $.60 = \frac{3}{5}$ 15. $.20 = \frac{1}{5}$ 16. $.225 = \frac{9}{40}$

Total Problems 16 Problems Correct _____

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Name _____ Skill: Changing Decimals to Fractions

Change each decimal to a fraction or mixed number.

1. $.008 = \frac{2}{250}$ 2. $.018 = \frac{9}{500}$ 3. $.921 = \frac{921}{1,000}$ 4. $.4 = \frac{2}{5}$

5. $.45 = \frac{9}{20}$ 6. $.16 = \frac{4}{25}$ 7. $.155 = \frac{31}{200}$ 8. $.032 = \frac{4}{125}$

9. $2.2 = 2\frac{1}{5}$ 10. $4.05 = 4\frac{1}{20}$ 11. $4.62 = 4\frac{31}{50}$ 12. $6.25 = 6\frac{1}{4}$

13. $3.024 = 3\frac{3}{125}$ 14. $.12 = \frac{3}{25}$ 15. $.018 = \frac{9}{500}$ 16. $3.25 = 3\frac{1}{4}$

Total Problems 16 Problems Correct _____

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Answer Key

Name _____ Rational Numbers

Order of Operations with Rational Numbers

- $-20 + 3 + 2\frac{2}{3} = -4$
- $\frac{1}{4}(-12 + 6) = -\frac{3}{2}$
- $-5 + 3 - 2 \div \frac{1}{3} - 21 + 7 = -\frac{3}{2}$
- $\frac{1}{2}[(-12 - 2) + (1 + 8) + 8] = -7\frac{9}{16}$
- $(5\frac{1}{5} - 2\frac{1}{5}) \cdot 6 - 16 = 34$
- $\frac{(20 \div 2) + 10}{-10 + 20 \div 30} = \frac{1}{2}$
- $2[-5(4 - 12) - 3] = 74$
- $4 \cdot 4[2 - (6 + 3)] = 0$
- $20 \div [(3 \cdot 6) - (24 + 8)] + 32 = 268$
- $2 \div [(4 + 2) + (32 + 8)] = \frac{1}{3}$
- $[(2 \cdot 2) - (30 + 6)] \div -25 - 23 = -49$

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57

KW 1009 Pre-Algebra

Name _____ Real Numbers

Comparing Real Numbers

4.68	4.78	$4\frac{1}{2}$	4.78
$4.68 <$	4.78	$4.50 <$	4.78

Use $<$, $>$, or $=$ to make each a true sentence.

- $2.5 = 2\frac{1}{2}$
- $1.078 < 1.78$
- $13.26 < 132.6$
- $883.21 < 7551.7$
- $232.33 > 23.233$
- $-3 < -3$
- $-9\frac{36}{48} > -9.77$
- $12\frac{5}{8} > 12.6$
- $1.5 < 1\frac{2}{3}$
- $3.2 = 3\frac{1}{5}$

Rewrite any fractions as decimals, then put the decimals for each problem in order from least to greatest.

$2\frac{1}{2}$	$2\frac{3}{5}$	2.4	2.4	$2\frac{1}{2}$	$2\frac{3}{5}$	2.4	2.5	2.6
----------------	----------------	-------	-------	----------------	----------------	-------	-------	-------

- $2.51, 2.511, 2.5111$
- $10.78, 10.781, 10.710, 10.77, 10.781$
- $2.51, 2.511, 2.5111$
- $7.5\frac{1}{2}, 5\frac{1}{3}, 5\frac{2}{3}, 5.33, 5.5, 5.75$
- $-3\frac{1}{5}, -3\frac{2}{5}, -3\frac{3}{5}, -3.71, -3.66, -3.2$
- $-1\frac{4}{5}, -1\frac{9}{10}, -1\frac{7}{8}, -1.9, -1.88, -1.80$
- $2\frac{1}{4}, 2\frac{7}{8}, 2\frac{3}{8}, 2.25, 2.33, 2.88$
- $7\frac{2}{3}, 7.45, 7\frac{3}{5}, 7.45, 7.6, 7.67$
- $4\frac{2}{3}, 4\frac{4}{6}, 4.34, 4.47, 4.34, 4.47$
- $-6\frac{1}{5}, -6.66, -6\frac{4}{5}, -6.8, -6.66, -6.2$
- $3.15, 3.8, 3\frac{2}{5}, 3.15, 3.4, 3.8$

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58

CD-3731 Pre-Algebra

Name _____ Equations

Open Sentences

$\frac{1}{5} \cdot 10 = x$	$\frac{81}{9} - 12 = 1$
$\frac{1}{5} \cdot \frac{10^2}{1} = x$	$9 - 12 = 1$
$2 = x$	$-3 = 1$

- $\frac{16 \div 7}{2} = r = 4$
- $\frac{25 + 12}{3} + 6 = b = \frac{5}{3}$
- $\frac{11 + 3}{2} = j = 2$
- $\frac{2 + 18}{4} = p = -4$
- $\frac{1}{5} \cdot 12 + 9 = w = -11\frac{2}{5}$
- $\frac{2}{5} \cdot 13 - 6 = m = -\frac{5}{3}$
- $-7.5 \cdot 3.3 + 13 = g = -11.75$
- $4.34 + 2.22 + 9 = q = 5.08$
- $1\frac{2}{5} + \frac{15}{45} = f = 4\frac{4}{5}$
- $-2 \cdot 5 - 6 = d = -16$
- $4 \cdot 3.61 - 16.6 = n = -2.36$
- $1 + 2.78 - 6.5 = z = -2.72$

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59

KW 1009 Pre-Algebra

Name _____ Equations

Open Sentences

$26 = r \cdot 2, \text{ if } r = 13$
$26 = 13 \cdot 2$
$26 = 26 \text{ True}$

- $6 + x = 3\frac{1}{2}, \text{ if } x = -3\frac{1}{2} \text{ False}$
- $\frac{15 + 12}{6} + 6 = 15, \text{ if } b = 3 \text{ True}$
- $2 + y = 9, \text{ if } y = 6 \text{ False}$
- $-\frac{2}{5} + \frac{1}{15} + \frac{1}{3} = -3, \text{ if } c = 2 \text{ False}$
- $\frac{m}{6} + 4 = 0, \text{ if } m = 6 \text{ False}$
- $7 + (e - 31) = -12, \text{ if } e = -12 \text{ False}$
- $y(6 + 3) + 2 = 37, \text{ if } y = 26 \text{ False}$
- $\frac{2}{6} \cdot 13 - k = 7, \text{ if } k = 6 \text{ False}$
- $11.2 + 2 - r = 14.1, \text{ if } r = 3.2 \text{ False}$
- $r + 6.32 + 3 = 2.2, \text{ if } r = -3 \text{ False}$
- $3x + 12 = 15, \text{ if } x = -1 \text{ False}$
- $-1 \cdot 5 - 6 = -23, \text{ if } l = 5 \text{ False}$
- $1(2 + 3) + 1 = 22, \text{ if } l = 16 \text{ False}$
- $z + 13 + 6.5 = 7, \text{ if } z = -3 \text{ False}$

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60

KW 1009 Pre-Algebra

Answer Key

Name _____ Equations

Evaluating Expressions

Evaluate the following if, $w = \frac{1}{2}$, $x = 3$, and $y = -4$

$$2x(2w + 2y) = 2 \cdot 3 [2(\frac{1}{2}) + 2(-4)] = 6(1 + -8) = 6(-7) = -42$$

$$1. w(xw + xy) = -\frac{21}{4}$$

$$8. 3w + 4(x - y) = 29\frac{1}{2}$$

$$2. 3w - 4x = -\frac{21}{2}$$

$$9. w(xw + xy) = \frac{21}{4}$$

$$3. 5(w - 2y) = \frac{85}{2}$$

$$10. wx + x - 6xy = \frac{153}{2}$$

$$4. y(w + 7) = -30$$

$$11. wx(3w + 2y - 5) = -\frac{69}{4}$$

$$5. 8x + -13x = -15$$

$$12. 6w - (xy + 3) = 12$$

$$6. 6(w + -y) = 27$$

$$13. 4w - 7x + 3y - 2w = -32$$

$$7. 5w(2y + 3x) = -\frac{5}{2}$$

$$14. 12y(4y + 2w) + -2x = 714$$

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61

KW 1009 Pre-Algebra

Name _____ Equations

Simplifying Expressions

Distributive Property

$$3(x + 4y) = 3x + 3 \cdot 4y = 3x + 12y$$

$$1. -6(b + c) = -6b + -6c$$

$$8. 2(3p - 5) = 6p - 10p$$

$$2. 3(w - 4) = 3w - 12$$

$$9. 7(-c + 6d) = -7c + 42d$$

$$3. 2(x - 12) = 2x - 24$$

$$10. 3(x + y + z) = 3x + 3y + 3z$$

$$4. 3(2 + r) = 6 + 3r$$

$$11. 4(2r + 6y) = 8r + 24y$$

$$5. 8(y + -2x) = 8y + -16x$$

$$12. 3k(-xy + -5) = -3kxy + -15k$$

$$6. 5(n + 13y) = 5n + 65y$$

$$13. -9(2x + 8) = -18x - 72$$

$$7. 5(2y + 5) = 10y + 25x$$

$$14. 12(2y + 5w) = 24y + 60w$$

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62

KW 1009 Pre-Algebra

Name _____ Equations

Simplifying Expressions

Distributive Property

$$2(w + 2b) = 2w + 2 \cdot 2b = 2w + 4b$$

$$1. 3(e + 3f) = 3e + 9f$$

$$8. 6(5d + 8b) = 30d + 48b$$

$$2. 6(2g + y) = 12g + 6y$$

$$9. 2(-t + 4e) = -2t + 8e$$

$$3. 7(y - 8) = 7y - 63$$

$$10. -4(j + k + g) = -4j + -4k + -4g$$

$$4. 4(3 + k) = 12 + 4k$$

$$11. 6(3v + 5c) = 18v + 30c$$

$$5. -5(h + -3p) = -5h + 15p$$

$$12. 3d(-nm + 7) = -3dnm + 21d$$

$$6. 2(-6q) = -12q$$

$$13. -3(8g + 3a) = -24g + -9a$$

$$7. -7(3s + 3m) = -21s + -21m$$

$$14. -5(3w + 8e) = -15w + -40e$$

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63

KW 1009 Pre-Algebra

Name _____ Equations

Simplifying Expressions

Combining like terms

$$3n - 2n + 4r = (3 - 2)n + 4r = n + 4r$$

$$1. 7r + 2r - 4 = 9r - 4$$

$$8. 12p + 5pd - 3p + 6pd = 9p + 11pd$$

$$2. 23x - 7x + 4x = 20x$$

$$9. 4x - 2x + 6xy + 21x + -9xy - 9 = 23x + -3xy - 9$$

$$3. 3xy + 13xy - 12xy = 4xy$$

$$10. 4e + 5ed + 4d - 7ed + 7 = 4e + 4d - 2ed + 7$$

$$4. -3n + 12 - 4n = -7n + 12$$

$$11. 3x + 2y - 2xy + 5x - 2xy = 8x - 4xy + 2y$$

$$5. 12ax - 2ax + 14x - 2a + -3x = 10ax + 11x - 2a$$

$$12. 7a + a - a + 3ab - ab + 2ab = 7a + 4ab$$

$$6. 3x + 2y + xy - 6xy + 4x + -4y = 7x - 2y - 5xy$$

$$13. 5m + 2m + 40m + m + 17 = 48m + 17$$

$$7. 2r + 4ry - 5r + 3x - 4ry = -3r + 3x$$

$$14. 2x + 3xy + 4x + 5xy + 6x = 12x + 8xy$$

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64

KW 1009 Pre-Algebra

Answer Key

Name _____ Equations

Simplifying Expressions

$$5r - 3r + 4k = (5-3)r + 4k \\ = 2r + 4k$$

$$1. 6r + 5r - 8p + 6p + 7(2r - 4r) = \\ -3r - 2p$$

$$8. 12p + 5pd - 3p + 6pd = \\ 9p + 11pd$$

$$2. 9x - 7x + 2x + 8(6x + 2x) = \\ 68x$$

$$9. 3(x - 5x) + 2(xy + 8x) + -8xy = \\ 4x - 6xy$$

$$3. 5xy - 12xy + 12xy - 9(x + y) = \\ 5xy - 9x - 9y$$

$$10. -2a - 3(a + 7) - 4(-a + b) = \\ 5a - 4b + 21$$

$$4. 2t + 12t - 4(n + 4n) = \\ 14t - 20n$$

$$11. 4n(x - y) + 3n(x + y) - 2 = \\ 7nx - ny - 2$$

$$5. -2(g + 5g) + 4(8f - 12g) = \\ -60g - 32f$$

$$12. 3(h - k) + 2(-3h + 4k) = \\ -3h - 5k$$

$$6. 7(2x + 5y) + xy - 6(3xy + 5x) = \\ -16x + 35y - 17xy$$

$$13. 8(2x + 2y) - 4(3xy - 5x) = \\ -4x + 16y - 12xy$$

$$7. 5m + 6mn - 9n + 2(m - n) = \\ 7m + 6mn + 7n$$

$$14. 3c - 4bc + 7b + 3(2bc - b) = \\ 3c + 2bc - 10b$$

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65

KW 1009 Pre-Algebra

Name _____ Equations

Solving Addition Equations

$$1.6 = -3.6 + x \\ 1.6 + 3.6 = -3.6 + 3.6 + x \\ 5.2 = 0 + x \\ 5.2 = x$$

$$1. x + -8 = 9 \\ x = 17$$

$$8. -35 = x + 35 \\ x = -70$$

$$2. w + 79 = -95 \\ w = -174$$

$$9. -\frac{1}{2} + x = -\frac{1}{2} \\ x = 0$$

$$3. 5 + c = -16 \\ c = -21$$

$$10. z + 4.2 = 9.1 \\ z = 4.9$$

$$4. -21 = t + 18 \\ t = -39$$

$$11. 28 = c + -14 \\ c = 42$$

$$5. -14 + r = 23 \\ r = 37$$

$$12. x + -3\frac{3}{4} = -11\frac{1}{4} \\ x = -7\frac{1}{2}$$

$$6. 3.5 = n + 4.6 \\ n = -1.1$$

$$13. -2,929 + t = 4,383 \\ t = 7,312$$

$$7. -2\frac{1}{2} + k = -2\frac{5}{7} \\ k = -\frac{3}{14}$$

$$14. -4.5 = 0\frac{1}{2} + c \\ c = -4$$

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66

KW 1009 Pre-Algebra

Name _____ Equations

Solving Subtraction Equations

$$36 = x - 9 \\ 36 = x + 9 \\ 36 - 9 = x + 9 - 9 \\ 28 = x + 0 \\ 28 = x$$

$$1. x - 8 = 34 \\ x = 42$$

$$8. -15 = p - 5 \\ p = -10$$

$$2. -33 = m - 11 \\ m = -22$$

$$9. -\frac{1}{3} - 0 = -\frac{1}{3} \\ 9 = 0$$

$$3. 1 - 8 = 45 \\ t = 37$$

$$10. 3.65 = n - 7 \\ n = 10.65$$

$$4. 34 = b - 2 \\ b = 32$$

$$11. z - 23.5 = -2.342 \\ z = -25.842$$

$$5. 1 - 16 = -32 \\ f = -16$$

$$12. a + 2\frac{1}{3} = -15\frac{1}{3} \\ a = -13$$

$$6. -3.4 = h - 8.5 \\ h = 5.1$$

$$13. -2.547 = n - 6.634 \\ n = 4.087$$

$$7. -3\frac{2}{3} - k = -6\frac{2}{3} \\ k = 3\frac{1}{2}$$

$$14. -2.2 = 8\frac{4}{5} - d \\ d = 11$$

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67

KW 1009 Pre-Algebra

Name _____ Equations

Solving Addition and Subtraction Equations

$$12 = c - 9 \\ 12 = c + 9 \\ 12 + 9 = c - 9 + 9 \\ 21 = c + 0 \\ 21 = c$$

$$1. x + 4 = -22 \\ x = -26$$

$$8. 12.4 - k = 4.3 \\ k = 8.1$$

$$2. 51 = u - 12 \\ u = 63$$

$$9. \frac{3}{4} + j = -\frac{3}{4} \\ j = -\frac{9}{2}$$

$$3. b + 9 = 54 \\ b = 63$$

$$10. 5.77 = q + 9 \\ q = -3.23$$

$$4. -56 = c - 8 \\ c = -64$$

$$11. w - 43.7 = -4.342 \\ w = -48.042$$

$$5. t + 12 = -18 \\ t = -30$$

$$12. 1 + 3\frac{1}{2} = -12\frac{1}{2} \\ f = -9$$

$$6. -6.7 = y - 27 \\ y = 20.3$$

$$13. -3.282 = n + 1.111 \\ n = -4.393$$

$$7. -5\frac{2}{3} + 1 = -8\frac{1}{3} \\ t = -4\frac{13}{35}$$

$$14. -3.1 = 4\frac{2}{5} - e \\ e = 7.85$$

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68

KW 1009 Pre-Algebra

Answer Key

Name _____ Equations

Solving Multiplication Equations

$$\begin{aligned} 5y &= -25 \\ 5 + 5y &= -25 + 5 \\ 1y &= -5 \\ y &= -5 \end{aligned}$$

1. $-7b = -77$

$$b = 11$$

2. $-144 = 12b$

$$b = -12$$

3. $-15m = 15$

$$m = -1$$

4. $36 = -6t$

$$t = -6$$

5. $3.5 = 7x$

$$x = 0.5$$

6. $-2.1 = -7c$

$$c = 3$$

7. $1\frac{2}{3} = 8x$

$$x = \frac{5}{27}$$

8. $4m = -2$

$$m = -\frac{1}{2}$$

9. $24t = 1.2$

$$t = 5$$

10. $-0.003 = .02c$

$$c = -0.015$$

11. $-12n = -56$

$$n = 4\frac{2}{3}$$

12. $43\frac{1}{2} = -13d$

$$d = -\frac{87}{26}$$

13. $23.66 = 13r$

$$r = 1.82$$

14. $33k = -878$

$$k = -\frac{878}{33}$$

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69

KW 1009 Pre-Algebra

Name _____ Equations

Solving Multiplication Equations

$$\begin{aligned} 3y &= -18 \\ 3 + 3y &= -18 + 3 \\ 1y &= -6 \\ y &= -6 \end{aligned}$$

1. $9h = -81$

$$h = -9$$

2. $60 = -5r$

$$r = -12$$

3. $-11q = 11$

$$q = -1$$

4. $42 = -7e$

$$e = -6$$

5. $-4.5 = 9h$

$$h = -0.5$$

6. $-6.7 = -134k$

$$k = 50$$

7. $2\frac{4}{5} = 5e$

$$e = \frac{8}{15}$$

8. $15n = -3$

$$n = -\frac{1}{5}$$

9. $.48y = 2.4$

$$y = 5$$

10. $-.0009 = .03q$

$$q = -0.03$$

11. $-13g = -85$

$$g = 5$$

12. $28\frac{1}{3} = -12w$

$$w = -\frac{85}{36}$$

13. $-350 = 25s$

$$s = -14$$

14. $43u = -734$

$$u = -17\frac{2}{43}$$

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70

KW 1009 Pre-Algebra

Name _____ Equations

Solving Division Equations

$$\begin{aligned} \frac{x}{2} &= 8 \\ 2 \cdot \frac{x}{2} &= 8 \cdot 2 \\ x &= 16 \end{aligned}$$

1. $-15 = \frac{x}{4}$

$$x = -45$$

2. $\frac{1}{4} = -36$

$$u = -144$$

3. $\frac{2}{3}c = -8$

$$c = -12$$

4. $.9 = \frac{k}{81}$

$$k = 72.9$$

5. $\frac{m}{6} = 36$

$$m = 216$$

6. $\frac{1}{12}c = .6$

$$c = 7.2$$

7. $\frac{1}{7}n = -28$

$$n = -196$$

8. $-12 = \frac{1}{4}t$

$$t = -48$$

9. $\frac{1}{4} = 16$

$$x = 65.6$$

10. $\frac{1}{7} = -23$

$$r = -391$$

11. $-3 = \frac{1}{3}x$

$$x = -9$$

12. $\frac{x}{8} = 56$

$$x = 448$$

13. $\frac{3}{7}h = 4.5$

$$h = 10.5$$

14. $\frac{2}{3}z = 33$

$$z = 49\frac{1}{2}$$

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171

KW 1009 Pre-Algebra

Name _____ Equations

Solving Multiplication and Division Equations

$$\begin{aligned} 4y &= -28 \\ 4 + 4y &= -28 + 4 \\ 1y &= -7 \\ y &= -7 \end{aligned}$$

$$\begin{aligned} \frac{n}{3} &= 9 \\ 3 \cdot \frac{n}{3} &= 9 \cdot 3 \\ n &= 27 \end{aligned}$$

1. $5n = -75$

$$n = -15$$

2. $12a = 144$

$$a = 12$$

3. $-12r = 12$

$$r = -1$$

4. $49 = -8u$

$$u = -5\frac{1}{2}$$

5. $4.5 = 9y$

$$y = 0.5$$

6. $3.7 = -21w$

$$w = -17.619$$

7. $2\frac{3}{5} = 6c$

$$c = \frac{13}{30}$$

8. $-.33 = \frac{1}{11}t$

$$t = -363$$

9. $\frac{1}{3.6} = 16$

$$p = 57.6$$

10. $\frac{1}{12}b = -12$

$$b = -72$$

11. $-.6 = \frac{x}{8}$

$$x = -36$$

12. $\frac{h}{9} = 63$

$$h = 567$$

13. $\frac{2}{3}c = 5.9$

$$c = 8.85$$

14. $\frac{1}{5}m = 22$

$$m = 110$$

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72

KW 1009 Pre-Algebra

Answer Key

Name _____ Equations

Solving Equations with 2 Operations

$$\begin{aligned} 3y - 7 &= 30 \\ 3y - 7 + 7 &= 30 + 7 \\ 3y &= 37 \\ \frac{3y}{3} &= \frac{37}{3} \\ y &= 12\frac{1}{3} \end{aligned}$$

Solve each equation for the given variable. State the answers in simplest terms.

1. $-8r - 7 = -24$

$$r = 2\frac{1}{8}$$

2. $5x - 5 = -10$

$$x = -1$$

3. $9 = 3y + 5$

$$y = \frac{4}{3}$$

4. $12 = 6c - 4$

$$c = 2\frac{2}{3}$$

5. $-23 = 3e - 9$

$$e = -10\frac{2}{3}$$

6. $16 = -2v + 9$

$$v = -3\frac{1}{2}$$

7. $\frac{2y}{4} = 12$

$$y = 16$$

8. $13n - 13 = -12$

$$n = \frac{1}{13}$$

9. $23x - 12 = -33$

$$x = -\frac{21}{23}$$

10. $-42 = 6b + 8$

$$b = -8\frac{1}{3}$$

11. $16 + 4y = -32$

$$y = -12$$

12. $16 + \frac{1}{2}r = -11$

$$r = -54$$

13. $2x - 5 = 16$

$$x = 10\frac{1}{2}$$

14. $11 = 3y - 10$

$$y = 7$$

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KW 1009 Pre-Algebra

Name _____ Equations

Solving Equations Using the Distributive Property

$$\begin{aligned} 3(c - 4) &= 15 \\ 3c - 12 &= 15 \\ 3c - 12 + 12 &= 15 + 12 \\ 3c &= 27 \\ \frac{3c}{3} &= \frac{27}{3} \\ c &= 9 \end{aligned}$$

Solve each equation for the given variable.

1. $3(C + 4) = -7$

$$C = -\frac{19}{3}$$

2. $35 = -7(z + 3)$

$$z = -8$$

3. $-7(l - 7) = -14$

$$l = 9$$

4. $30 = 5(\frac{1}{5} - 3)$

$$r = 45$$

5. $16(x - 3) = -33$

$$x = \frac{15}{16}$$

6. $36 = 6(x - 5)$

$$x = 11$$

7. $5(3 - \frac{9}{5}) = 8$

$$C = \frac{49}{5}$$

8. $2(n + 6) = 80$

$$n = 34$$

9. $3(8 - 6n) = 41$

$$n = -\frac{17}{18}$$

10. $7(2x - 3) + 3 = 24$

$$x = 3$$

11. $2(9x - 8) = -22$

$$x = -\frac{1}{3}$$

12. $-36 = 2(x + 4)$

$$x = -22$$

13. $-4(6 + n) + 3 = 38$

$$n = -\frac{49}{4}$$

14. $-23 = 5(t - 4)$

$$t = \frac{3}{5}$$

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KW 1009 Pre-Algebra

Name _____ Equations

Solving Equations

$$\begin{aligned} 3x + 5 &= 4x + 6 \\ 3x - 4x + 5 &= 4x - 4x + 6 \\ -x + 5 &= 6 \\ -x + 5 - 5 &= 6 - 5 \\ -x &= 1 \\ \frac{-x}{-1} &= \frac{1}{-1} \\ x &= -1 \end{aligned}$$

Solve each equation for the given variable.

1. $3m - 8 = 6m + 8$

$$m = -8$$

2. $-1 + 9 = 1 + 5$

$$t = 2$$

3. $7y - 7 = 5y + 13$

$$y = 10$$

4. $4h + 10 = 2h + 22$

$$h = -16$$

5. $-r - 3 = 1 - 3r$

$$r = 2$$

6. $17 + p = 7p - 13$

$$p = 5$$

7. $4x - 7 = 2x + 7$

$$x = 7$$

8. $23b + 9 = 4b + 66$

$$b = 3$$

9. $-4g + 12 = g + 2$

$$g = 2$$

10. $-8t = 27 + 1$

$$t = -3$$

11. $13y - 26 = 7y + 22$

$$y = 8$$

12. $4n - 6 = 6n + 14$

$$n = -10$$

13. $e + 8 = 2e - 12$

$$e = 20$$

14. $9w + 6 = 6w - 15$

$$w = -7$$

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CD-3731 Pre-Algebra

Name _____ Equations

Solving equation / Mixed Practice

Solve each equation for the given variable.

1. $j + 5 = -7$

$$j = -12$$

2. $9w + 9 = 3w - 15$

$$w = -4$$

3. $3g + 12 = 6g - 3$

$$g = 5$$

4. $45 = -9(e + 8)$

$$e = -13$$

5. $4(y - 8) = -12$

$$y = 5$$

6. $24 = 4(\frac{1}{2} - 7)$

$$h = 26$$

7. $11g = 121$

$$g = 11$$

8. $-13k = 52$

$$k = -4$$

9. $35 = -7t$

$$t = -5$$

10. $3h + 5 = 2h - 9$

$$h = -14$$

11. $6u = 21 - u$

$$u = 3$$

12. $12k + 13 = 8k + 33$

$$k = 5$$

13. $7(p - 8) = -63$

$$p = 3$$

14. $-6(36 - 10b) + 8 = 32$

$$b = 4$$

15. $9(8c - 9) = -351$

$$c = 6$$

16. $\frac{m}{25} = 22$

$$m = 55$$

17. $\frac{2}{5}n = -20$

$$n = -50$$

18. $-5 = \frac{1}{5}b$

$$b = -25$$

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KW 1009 Pre-Algebra

Answer Key

Name _____ Problem Solving

Writing Algebraic Expressions

Three times a number decreased by 7	$3x - 7$
A number increased by 9	$x + 9$
The number divided by 3	$b \div 3$ or $\frac{b}{3}$
The product of 3 and 8	$3 \cdot 8$

- Eleven times the sum of a number and five times the number $11(x+5x)$
- Seven times the sum of twice a number and sixteen $7(2x+16)$
- Eleven times a number decreased by three $11x-3$
- Two-fifths of a number minus seven $\frac{2}{5}x-7$
- Three times the difference between x and 5 $3(x-5)$
- Five times a number plus six times the number $5x+6x$
- A number increased by three times the number $x+3x$
- The quotient of a number and five decreased by two $\frac{x}{5}-2$
- One-third times a number increased by six $\frac{1}{3}x+6$
- Four times the sum of a number and eight $4(x+8)$
- Five increased by seven times a number $5+7x$
- The product of six and a number increased by six $6(x+6)$

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Name _____ Problem Solving

Writing Algebraic Expressions

Three times a number decreased by 7	$3x - 7$
A number increased by 9	$x + 9$
The number divided by 3	$b \div 3$ or $\frac{b}{3}$
The product of 3 and 8	$3 \cdot 8$

- Two-thirds of a number and eight $\frac{2}{3}x+8$
- Nine more than the quotient of b and 4 $(b \div 4)+9$
- Two times the sum of a number and twelve $2(x+12)$
- Four-sevenths of a number minus six $\frac{4}{7}x-6$
- Three times a number plus five times the number $3x+5x$
- Seven times the difference between c and 4 $7(c-4)$
- A number increased by four times the number $x+4x$
- The quotient of a number and four increased by three $(x \div 4)+3$
- Two-thirds times a number increased by five $\frac{2}{3}x+5$
- Two times a number times and eight $2x+8$
- Three increased by two times a number $3+2x$
- The quotient of five and a number increased by two $(5 \div x)+2$

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Name _____ Problem Solving

Writing Algebraic Expressions

Write an equation for each and solve.

Nine more than a number is 36. Find the number.

$$\begin{aligned} 9 + x &= 35 \\ 9 - 9 + x &= 35 - 9 \\ x &= 26 \end{aligned}$$

- A number increased by 7 is -23. Find the number. $x+7=-23$
 $x=-30$
- One-third of a number is -20. Find the number. $\frac{1}{3}x=-20$
 $x=-60$
- The product of -7 and a number is 35. Find the number. $-7x=35$
 $x=-5$
- Three times a number is 21. Find the number. $3x=21$
 $x=7$
- The cost of five cakes is \$41.00. What is the cost of each cake? $5x=41$
 $x=\$8.20$
- The cost of a saddle is \$231.00. What is the cost of four saddles? $(231)(4)=x$
 $\$924=x$
- Four times a number is 52. Find the number. $4x=52$
 $x=13$

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Name _____ Problem Solving

Writing Algebraic Expressions

Write an equation for each and solve.

Eight more than a number is 28. Find the number.

$$\begin{aligned} 8 + x &= 28 \\ 8 - 8 + x &= 28 - 8 \\ x &= 20 \end{aligned}$$

- A number increased by 9 is 41. Find the number. $x+9=41$
 $x=32$
- One-fourth of a number is 12. Find the number. $\frac{1}{4}x=12$
 $x=48$
- The product of -4 and a number is 36. Find the number. $-4x=36$
 $x=-9$
- Three times a number is 45. Find the number. $3x=45$
 $x=15$
- The cost of five boxes is \$22.00. What is the cost of each box? $5x=22$
 $x=\$4.40$
- The cost of a television is \$432.00. What is the cost of four televisions? $(4)(432)=x$
 $\$1728=x$
- Four times a number is 48. Find the number. $4x=48$
 $x=12$

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Answer Key

Name _____ Problem Solving

Writing Algebraic Expressions

Write an equation for each and solve.

Six more than 3 times a number is 21.
What is the number?

$$\begin{aligned} 6 + 3x &= 21 \\ 6 - 6 + 3x &= 21 - 6 \\ 3x &= 15 \\ x &= 5 \end{aligned}$$

- Two-thirds of a number increased by two is ten. What is the number?
 $\frac{2}{3}x + 2 = 10 \quad x = 12$
- Six more than a number is negative thirty-one. What is the number?
 $6 + x = -31 \quad x = -37$
- Nine less than three times a number is twenty-seven. What is the number?
 $3x - 9 = 27 \quad x = 12$
- Two times the sum of a number and five is twenty-six. What is the number?
 $2(x + 5) = 26 \quad x = 8$
- The product of a number and four increased by seven is three. What is the number?
 $4x + 7 = 3 \quad x = -1$
- The quotient of a number and three decreased by six is two. What is the number?
 $\frac{x}{3} - 6 = 2 \quad x = 24$
- Two more than five times a number is thirty-two. What is the number?
 $2 + 5x = 32 \quad x = 6$

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81

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Name _____ Problem Solving

Writing Algebraic Expressions

Write an equation for each and solve for the variable.

One number plus 5 times that number equals 120.
Find the number.

$$\begin{aligned} x + 5x &= 120 \\ 6x &= 120 \\ x &= 20 \end{aligned}$$

- One number plus six times that number equals 133. Find the number.
 $x + 6x = 133 \quad (19)$
- The sum of two numbers is 96. The larger number is twice the smaller number. Find the number.
 $x + 2x = 96 \quad (12)$
- One number plus three times that number is 44. Find the number.
 $x + 3x = 44 \quad (11)$
- The difference between two numbers is 16. The first number is five times the second number. Find the number.
 $5x - x = 16 \quad (4)$
- One number is seven times a second number. Four times the smaller number plus twice the larger number equals 36. Find the number.
 $4(x) + 2(7x) = 36 \quad (2)$
- There were 474 tickets sold for the school football game. Students bought five times as many tickets as the faculty did. Find the number of student and faculty tickets sold.
 $5f + f = 474 \quad \text{Students } 395 / \text{Faculty } 79$
- The sum of two numbers is 126. The larger number is 5 times larger than the smaller number. Find the number.
 $x + 5x = 126 \quad (21)$

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82

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Name _____ Problem Solving

Writing Algebraic Expressions

Write an equation for each and solve.

Seven times a number equals fifteen less than two times the number. Find the number.

$$\begin{aligned} 7x &= 2x - 15 \\ 7x - 2x &= 2x - 15 \\ 5x &= -15 \\ x &= -3 \end{aligned}$$

- One half of a number is 12 more than 2 times the number. Find the number.
 $\frac{1}{2}x = 12 + 2x \quad x = -8$
- Thirty decreased by three times a number is six less than three times the number. Find the number.
 $30 - 3x = 3x - 6 \quad x = 6$
- Fifty increased by five times a number is six less than four times the number. Find the number.
 $50 + 5x = 4x - 6 \quad x = -56$
- Twice a number decreased by 39 is five times the sum of the number and two times the number. Find the number.
 $2x - 39 = 5(x + 2x) \quad x = -3$
- Twelve increased by six times a number is six less than seven times the number. Find the number.
 $12 + 6x = 7x - 6 \quad x = 18$
- Nineteen increased by three times a number is four less than four times the number. Find the number.
 $19 + 3x = 4x - 4 \quad x = 23$
- Four times the sum of a number and three is seven times the number decreased by 3. Find the number.
 $4(x + 3) = 7x - 3 \quad x = 5$

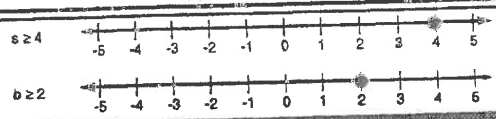
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83

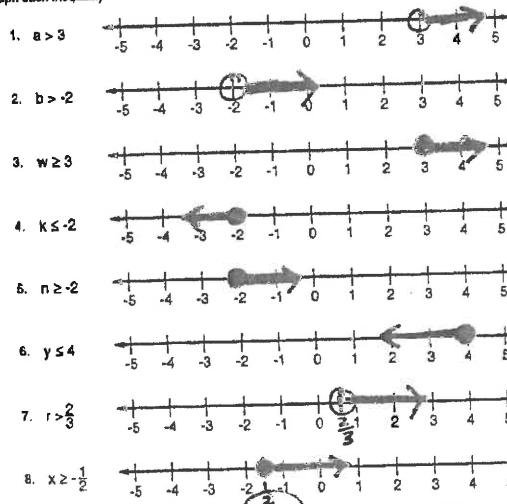
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Name _____ Inequalities

Number Lines



Graph each inequality on the number line.



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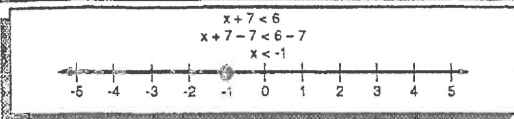
84

KW 1009 Pre-Algebra

Answer Key

Name _____ Inequalities

Solving Inequalities with Addition and Subtraction



Solve each inequality and graph on the number line.

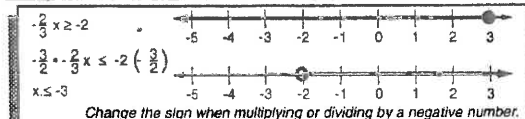
- $1 > 3 - d$
 $d > 2$
- $1 - 4 > -2$
 $f > 2$
- $2 > y + 2$
 $y < 0$
- $x - 4 \leq 2$
 $x \leq 6$
- $-3 \leq 2 + g$
 $g \geq -5$
- $2.3 \geq s + 3$
 $s \leq -0.7$
- $d + \frac{1}{2} \geq \frac{1}{4}$
 $d \geq -\frac{1}{4}$
- $7 + n \leq 8$
 $n \leq 1$

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Name _____ Inequalities

Solving Inequalities with Multiplication and Division



Solve each inequality and graph on the number line.

- $12x > 24$
 $x > 2$
- $-10n \leq -30$
 $n \geq 3$
- $1.8x \geq -5.2$
 $x \geq -2.8$
- $-3x < 3$
 $x > -1$
- $n \geq -2$
- $-\frac{3}{4} \leq 30$
 $c \leq \frac{1}{4}$
- $2 > \frac{2}{3}z$
 $z < 3$
- $2x \geq \frac{1}{2}$
 $x \geq \frac{1}{4}$

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Name _____ Inequalities

Practice Solving Inequalities

Solve each inequality and graph on the number line.

- $3t \geq -3$
 $t \geq -1$
- $-6 \geq 2b$
 $b \leq -3$
- $2c \geq 2$
 $c \geq 1$
- $9 + 1 \leq 4$
 $c \leq 3$
- $m \geq -3$
- $x \geq 5$
- $-4 \leq 2$
 $r \geq -2$
- $1 \leq 4$
 $t \leq -4$
- $x > -2$
 $x > 2$
- $r \geq 3$
 $r \geq 3$

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Name _____ Inequalities

Practice Solving Inequalities

Solve each inequality and graph on the number line.

- $-13 < g - 12$
 $g > -1$
- $-34.5 \leq x + -31.5$
 $x \geq -3$
- $8.5c < 8.5$
 $c < 1$
- $h + 9 > 12$
 $h > 3$
- $d + 4.5 \geq -1.5$
 $d \geq -6$
- $11 > r + 14$
 $r < -3$
- $c + 2 > -3$
 $c > -5$
- $-\frac{3}{2} \geq 2$
 $n \leq -6$
- $4 \geq s - (-2)$
 $s \leq -6$
- $\frac{1}{2}y > -5$
 $y > -10$

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