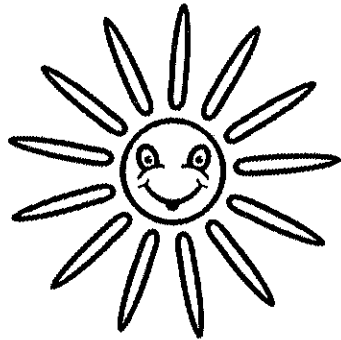


Grade 8



Summer Math 2024

Name: _____

Name _____

SOLVING EQUATIONS—VARIABLES ON BOTH SIDES #1

Directions: Solve for x in each equation below. Use inverse operations to get the variable all by itself on one side of the equation, and then get the integers (numbers) alone on the other side of the equation.

Examples: $5x = 2x + 48$ (subtract $2x$ from both sides)

$3x = 48$ (divide both sides by 3)

$x = 16$

$5x + 12 = 2x + 36$ (subtract $2x$ from both sides)

$3x + 12 = 36$ (subtract 12 from both sides)

$3x = 24$ (divide both sides by 3)

$x = 8$

1) $3x = 2x + 50$

2) $6x = 2x + 44$

3) $8x = 2x + 36$

4) $4x = x + 18$

$x =$ _____

$x =$ _____

$x =$ _____

$x =$ _____

5) $7x + 10 = 3x + 120$

6) $20 + 2x = x + 56$

7) $6x + 16 = 2x + 28$

8) $12x + 12 = 3x + 84$

$x =$ _____

$x =$ _____

$x =$ _____

$x =$ _____

9) $3 + 6x = 2x + 27$

10) $8x + 2 = 72 + x$

11) $2x + 20 = x + 60$

12) $4x + 1 = 25 + 2x$

$x =$ _____

$x =$ _____

$x =$ _____

$x =$ _____

Name _____

SOLVING EQUATIONS—VARIABLES ON BOTH SIDES #3

Directions: Solve for x in each equation below. Use inverse operations to get the variable all by itself on one side of the equation, and then get the integers (numbers) alone on the other side of the equation.

Examples: $5x - 2 = x + 26$ (add 2 to both sides) $5x + 12 = 2x - 9$ (subtract 12 from both sides)
 $5x = x + 28$ (subtract x from both sides) $5x = 2x - 21$ (subtract $2x$ from both sides)
 $4x = 28$ (divide both sides by 4) $3x = -21$ (divide both sides by 3)

$x = 7$

$x = -7$

1) $3x - 21 = 2x + 5$

2) $6x - 64 = 2x + 44$

3) $8x - 20 = 2x + 34$

4) $4x - 18 = x + 3$

$x =$ _____

$x =$ _____

$x =$ _____

$x =$ _____

5) $7x + 21 = 2x - 49$

6) $6x + 68 = 2x - 44$

7) $8x + 72 = 2x - 36$

8) $4x + 21 = x - 18$

$x =$ _____

$x =$ _____

$x =$ _____

$x =$ _____

9) $4x - 12 = 2x + 50$

10) $5x + 8 = 4x - 4$

11) $4x - 18 = 2x + 34$

12) $4x + 6 = 2x - 8$

$x =$ _____

$x =$ _____

$x =$ _____

$x =$ _____

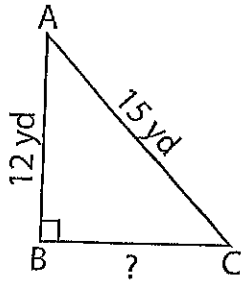
Name: _____

Pythagorean Theorem

Sheet 1

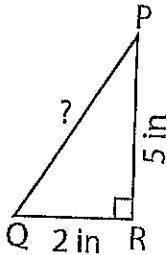
Determine the missing length in each right triangle using the Pythagorean theorem. Round the answer to the nearest tenth.

1)



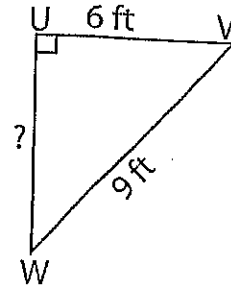
BC = _____

2)



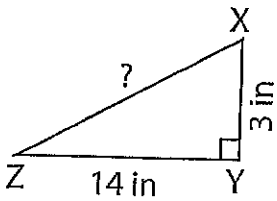
PQ = _____

3)



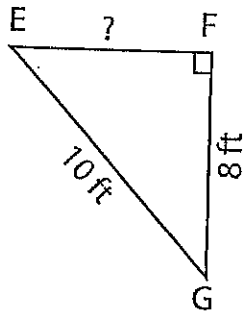
UW = _____

4)



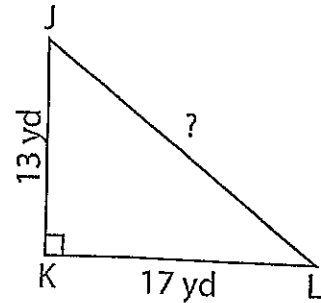
XZ = _____

5)



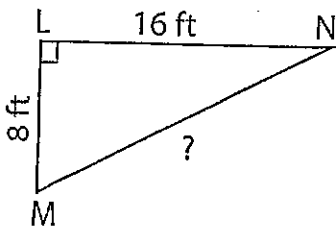
EF = _____

6)



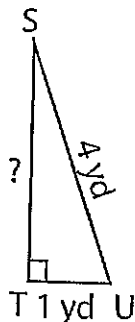
JL = _____

7)



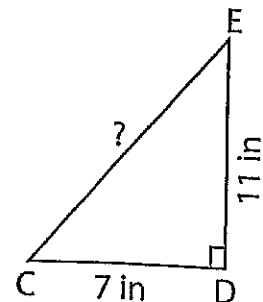
MN = _____

8)



ST = _____

9)



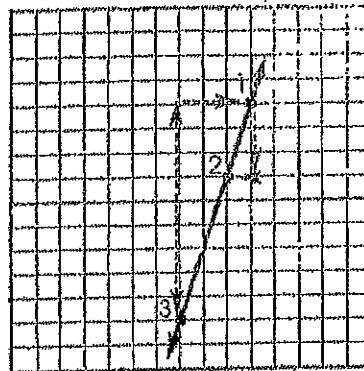
CE = _____

Finding the Slope of a Line

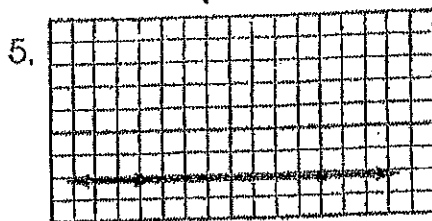
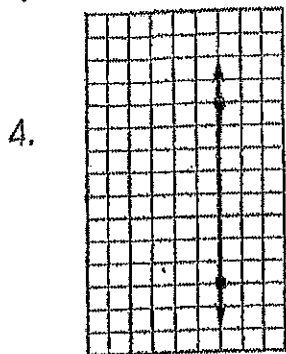
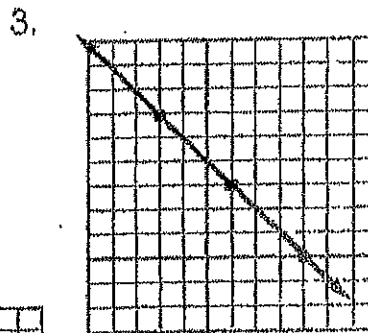
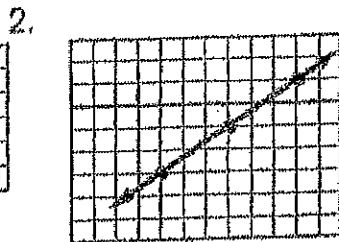
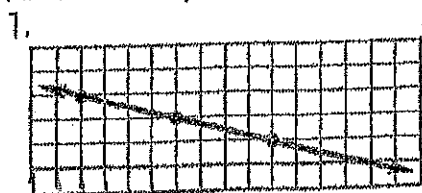
$$\text{Slope} = \frac{\text{vertical change}}{\text{horizontal change}}$$

Identify the slope of the line using the graph.

Using points 1 & 2
 vertical change = 3
 horizontal change = 1
 $\text{slope} = \frac{3}{1} = 3$



Find the slope.



$$\text{Slope} = \frac{\text{change in } y\text{-values}}{\text{change in } x\text{-values}} = \frac{y_2 - y_1}{x_2 - x_1}$$

Find the slope of the line passing through the given points.

(1, 5) (3, -2)

$$\text{slope} = \frac{-2 - 5}{3 - (1)} = \frac{-7}{2}$$

6. (0, 0) (3, 5)

11. (7, 3) (8, 3)

7. (5, -2) (7, 4)

12. (0, 0) (4, -3)

8. (-6, 3) (-2, -9)

13. (-2, -3) (2, 5)

9. (6, -9) (-4, 3)

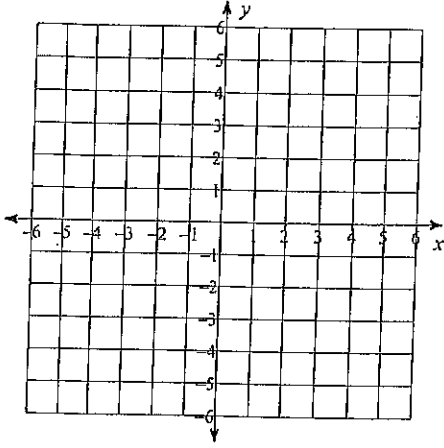
14. (-4, 8) (-4, -3)

10. (-3, -11) (2, -7)

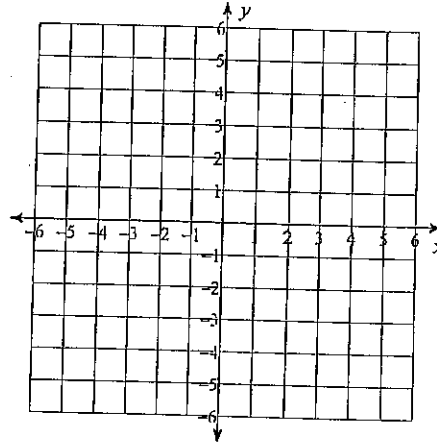
Graphing Lines in Slope-Intercept Form

Sketch the graph of each line.

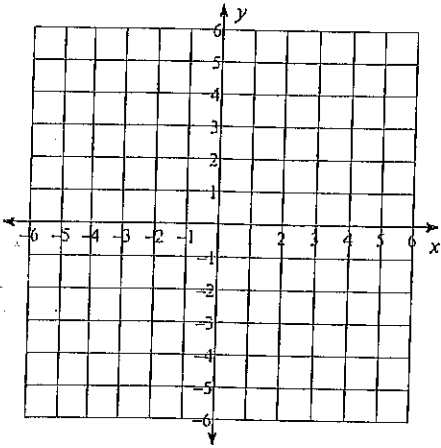
1) $y = \frac{1}{4}x - 1$



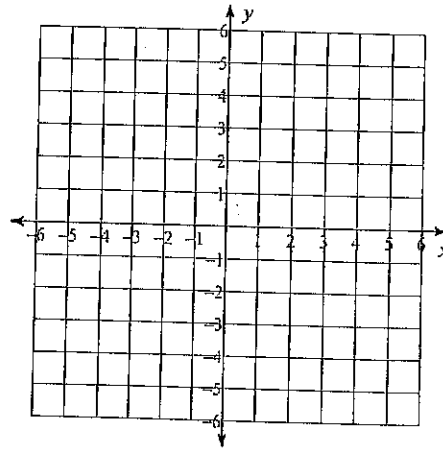
2) $y = -x + 2$



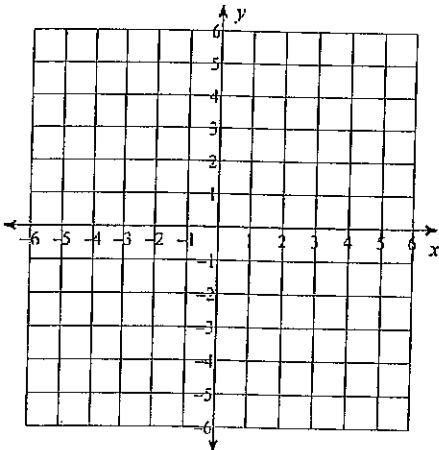
3) $y = x + 1$



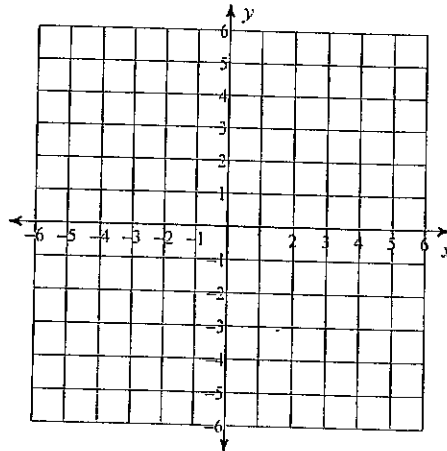
4) $y = \frac{4}{3}x - 4$



5) $y = -3x - 3$



6) $y = 4$



Systems of Equations: Substitution Method

$$\begin{aligned}x - 5 &= 10 \\ 2x + y &= 7 \Rightarrow y = 2x + 7 \\ \text{Solution } (5, -3)\end{aligned}$$

$$\begin{aligned}x - 5(2x + 7) &= 10 \\ x - 10x - 35 &= 10 \\ -9x - 35 &= 10 \\ -9x &= 45 \\ x &= -5\end{aligned}$$

1. $y = 5 - 4x$
 $3x - 2y = 12$

8. $y = -x + 6$
 $x - 2y = 6$

2. $3x + 2y = 8$
 $x = 3y + 10$

9. $2y - x = 6$
 $3y - x = 4$

3. $3x - 4y = 15$
 $5x + y = 2$

10. $5x - 6y = 16$
 $5x + y = 2$

4. $x + y = 2$
 $3x + 2y = 5$

11. $y = 3x$
 $x + y = 8$

5. $x = 3 - 3y$
 $4y = x + 11$

12. $x - 3y = 5$
 $2x + y = 11$

6. $x - y = 15$
 $x + y = 5$

13. $-x + y = 5$
 $y = 3x + 1$

7. $2x + y = 6$
 $3x + y = 10$

14. $2x = 3y$
 $x = 3y - 3$

Systems of Equations: Elimination Method

$$x + y = 6$$

$$x - y = 4$$

$$x + y = 6$$

$$+ x - y = 4$$

$$\hline 2x = 10$$

$$x = 5$$

$$x + y = 6 \Rightarrow 5 + y = 6$$

$$y = 1$$

Solution (5, 1)

$$3y = 7x + 7$$

$$2y = 7x - 7$$

$$2y = 7x - 7 \Rightarrow 0 = 7x - 7$$

$$7 = 7x$$

$$1 = x$$

Solution (1, 0)

$$7x + 3y = 7$$

$$- (7x - 2y = 7)$$

$$\hline 5y = 0$$

$$y = 0$$

$$2x + y = 6$$

$$3x + y = 10$$

$$8. \quad 7y + 15 = 3x$$

$$15 = 3x + 2y$$

$$8. \quad 8x - y = 20$$

$$5x + y = 8$$

$$9. \quad 25x = 91 - 16y$$

$$16y = 64 - 16x$$

$$2x + y = 0$$

$$2x - 3y = 8$$

$$10. \quad 4x - 2y = 2$$

$$4x + 3y = 12$$

$$5x + 3y = 10$$

$$2x - 3y = 4$$

$$11. \quad 2x + y = 7$$

$$y = 3x + 3$$

$$9x - 3y = 9$$

$$x + 3y = 11$$

$$12. \quad 3x = 2y + 10$$

$$x = 2y + 6$$

$$x + 3y = 9$$

$$x - 2y = 6$$

$$13. \quad x + 4y = 2$$

$$x - 2y = 8$$

$$2x + y = 4$$

$$2x + 2y = 2$$

$$14. \quad x + 5y + 11 = 0$$

$$3x - 5y - 7 = 0$$

Exponents and Multiplication

Simplify. Your answer should contain only positive exponents.

1) $4^2 \cdot 4^2$

2) $4 \cdot 4^2$

3) $3^2 \cdot 3^2$

4) $2 \cdot 2^2 \cdot 2^2$

5) $2n^4 \cdot 5n^4$

6) $6r \cdot 5r^2$

7) $2n^4 \cdot 6n^4$

8) $6k^2 \cdot k$

9) $5b^2 \cdot 8b$

10) $4x^2 \cdot 3x$

11) $6x \cdot 2x^2$

12) $6x \cdot 6x^3$

Solve each problem. Answer in scientific notation.

1) $(9.6 \times 10^7) \times (4.3 \times 10^4)$

2) $(8.7 \times 10^4) \times (2.4 \times 10^9)$

3) $(1 \times 10^4) \times (1.6 \times 10^9)$

4) $(1 \times 10^3) \times (7.7 \times 10^9)$

5) $(9.04 \times 10^{10}) \times (5.74 \times 10^9)$

6) $(3.51 \times 10^8) \times (4.9 \times 10^3)$

7) $(9.05 \times 10^6) \times (4.62 \times 10^3)$

8) $(9.4 \times 10^9) \times (2.6 \times 10^4)$

9) $(5.4 \times 10^5) \times (1.5 \times 10^3)$

10) $(8.52 \times 10^9) \times (4.47 \times 10^9)$

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Name : _____

T151

Complementary & Supplementary Angles - Revision

A) Find the complement and supplement of each angle.

1) 35°

Complement of $35^\circ =$ _____

Supplement of $35^\circ =$ _____

2) 20°

Complement of $20^\circ =$ _____

Supplement of $20^\circ =$ _____

3) 66°

Complement of $66^\circ =$ _____

Supplement of $66^\circ =$ _____

4) 81°

Complement of $81^\circ =$ _____

Supplement of $81^\circ =$ _____

B) State whether the given pairs are complementary or supplementary.

1) $75^\circ, 105^\circ$

2) $76^\circ, 14^\circ$

3) $62^\circ, 28^\circ$

4) $118^\circ, 62^\circ$

5) $132^\circ, 48^\circ$

6) $19^\circ, 71^\circ$

C) Match the following.

1)

Complement of 50°

130°

2)

Supplement of 145°

63°

3)

Complement of 27°

35°

4)

Supplement of 50°

40°

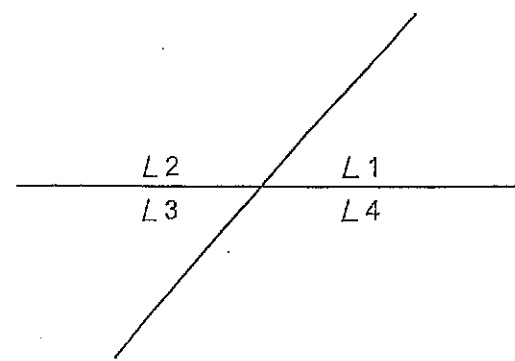
Name : _____

Score : _____

Teacher : _____

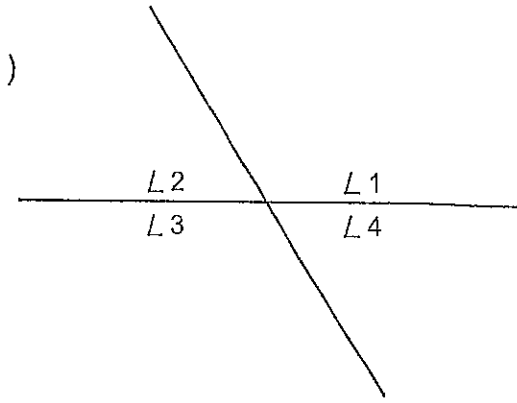
Date : _____

Find the missing vertical angles.

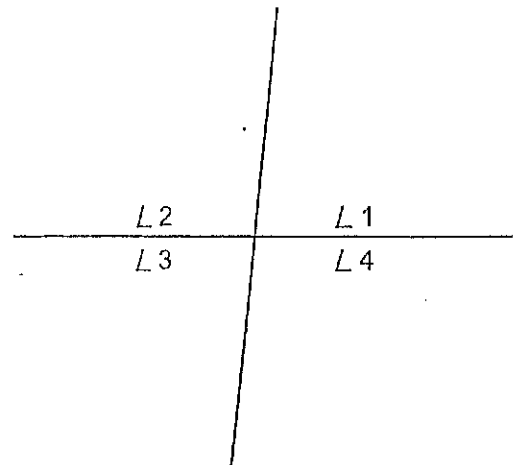


$L1 = 49^\circ$
 $L2 = 131^\circ$
 $L3 = \underline{\hspace{2cm}}$
 $L4 = \underline{\hspace{2cm}}$

2)

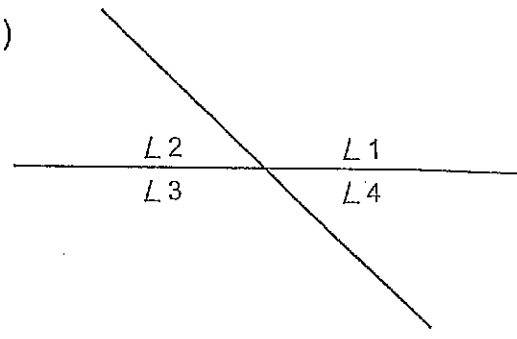


$L1 = \underline{\hspace{2cm}}$
 $L2 = 58^\circ$
 $L3 = 122^\circ$
 $L4 = \underline{\hspace{2cm}}$

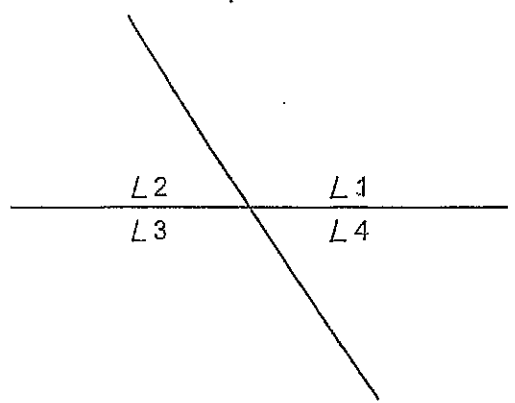


$L1 = 85^\circ$
 $L2 = \underline{\hspace{2cm}}$
 $L3 = \underline{\hspace{2cm}}$
 $L4 = 95^\circ$

4)

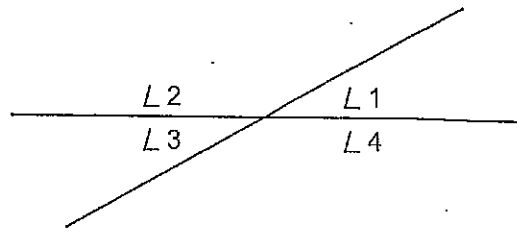


$L1 = 137^\circ$
 $L2 = \underline{\hspace{2cm}}$
 $L3 = \underline{\hspace{2cm}}$
 $L4 = 43^\circ$

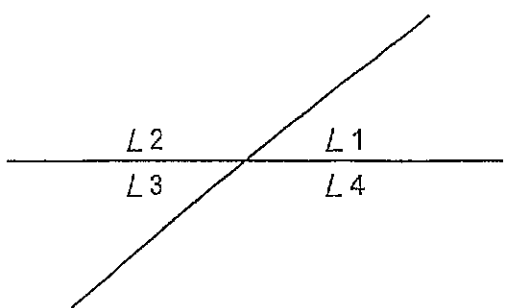


$L1 = \underline{\hspace{2cm}}$
 $L2 = \underline{\hspace{2cm}}$
 $L3 = 124^\circ$
 $L4 = 56^\circ$

6)

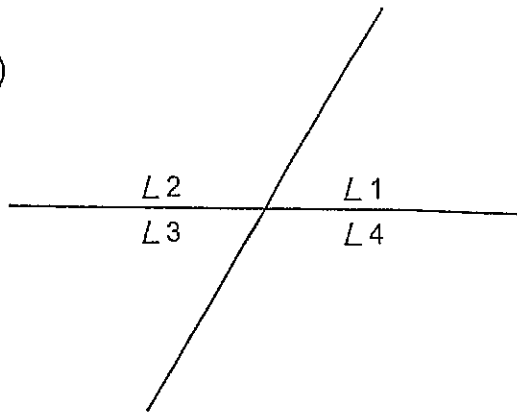


$L1 = \underline{\hspace{2cm}}$
 $L2 = \underline{\hspace{2cm}}$
 $L3 = 29^\circ$
 $L4 = 151^\circ$



$L1 = \underline{\hspace{2cm}}$
 $L2 = 142^\circ$
 $L3 = 38^\circ$
 $L4 = \underline{\hspace{2cm}}$

8)



$L1 = 59^\circ$
 $L2 = 121^\circ$
 $L3 = \underline{\hspace{2cm}}$
 $L4 = \underline{\hspace{2cm}}$

1. $-9 + 7 =$

2. $9 + -7 =$

3. $-9 + -7 =$

4. $-7 + -8 + 14 =$

5. $-32 + 16 + 21 + -24 =$

6. $7 - 9 =$

7. $4 - -9 =$

8. $-3 - 9 =$

9. $-13 - 14 =$

10. $16 - 17 =$

11. $3 \cdot -16 =$

12. $-4 \cdot -19 =$

13. $2 (-7) (-4) =$

14. $-2 \cdot 3 (-4) \cdot 2 =$

15. $-36 \div 4 =$

16. $-126 \div -3 =$

17. $\frac{-128}{-8} =$

18. $\frac{-36 \div 2}{24 \div -4} =$

19. $\frac{6 \cdot -3}{-54 \div -6} =$

20. $\frac{-20 \cdot -3}{-30 \div -10} =$

1	
2	
3	
4	
5	
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7	
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10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Linear Equations Worksheet

Solve the equations.

1 a. $\frac{x}{1} = 7$

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

2 a. $-8c = 1$

2 b. $\frac{x}{12} = 10$

3 a. $7 - p = 4$

3 b. $x - 10 = -6$

4 a. $12 = \frac{c}{9}$

4 b. $-2c - 4c = 2$