

Evaluate.

1) $\left(\frac{1}{4}\right)^2$

1) _____

A) $\frac{1}{8}$

B) $\frac{1}{2}$

C) $\frac{1}{16}$

D) $\frac{1}{6}$

Simplify the expression.

2) $9^2 - 5 \cdot 6$

2) _____

A) 456

B) 216

C) 96

D) 51

3) $\frac{83 + 7}{3^2 - 4}$

3) _____

A) 45

B) 16

C) 18

D) 27

Evaluate the expression for the given replacement values.

4) $(x + 2y)^2$ $x = 3, y = 4$

4) _____

A) 121

B) 25

C) 11

D) 22

Write the phrase as an algebraic expression. Let x represent the unknown number.

5) Five more than a number

5) _____

A) $\frac{x}{5}$

B) $5x$

C) $x + 5$

D) $x - 5$

6) The product of a number and 18

6) _____

A) $x + 18$

B) $x - 18$

C) $\frac{x}{18}$

D) $18x$

Write the sentence as an equation or inequality. Use x to represent any unknown number.

7) The sum of 6 and twice a number is 34.

7) _____

A) $6x + 2 = 34$

B) $6x - 2 = 34$

C) $34 + 2x = 6$

D) $6 + 2x = 34$

Use the distributive property to write the expression without parentheses. Then simplify, if necessary.

8) $-3(-6x - 9)$

8) _____

A) $45x$

B) $18x - 27$

C) $-18x - 27$

D) $18x + 27$

9) $\frac{1}{4}(12x - 8)$

9) _____

A) $3x - 8$

B) $3x - 2$

C) $48x - 32$

D) x

Simplify the expression.

10) $3[-4 + 5(-4 + 3)]$

10) _____

A) -3

B) -27

C) -17

D) -7

11) $\frac{|-3| + 2}{9 - 3}$ 11) _____

A) $-\frac{5}{6}$ B) $\frac{5}{6}$ C) $\frac{2}{9}$ D) $-\frac{1}{6}$

12) $-10 - (-4)$ 12) _____

A) -14 B) 6 C) -6 D) 14

Use the distributive property to write the expression without parentheses. Then simplify, if necessary.

13) $12 + 4(5x - 2)$ 13) _____

A) $5x + 4$ B) $20x - 4$ C) $20x + 4$ D) $20x + 10$

Simplify the expression.

14) $6y + 10 - 2y + 7$ 14) _____

A) $8y + 17$ B) $4y + 17$ C) $21y$ D) $4y + 3$

15) $6 + 4(5y - 4)$ 15) _____

A) $20y - 22$ B) $20y - 10$ C) $20y + 10$ D) $20y + 24$

Solve the equation.

16) $4(2n - 4) = 7(n + 3)$ 16) _____

A) -5 B) 5 C) 9 D) 37

17) $\frac{1}{3} - x + \frac{11}{3} = x - 10$ 17) _____

A) -7 B) 7 C) 21 D) -3

Solve the equation for the indicated variable.

18) $I = Prt$ for P 18) _____

A) $P = \frac{r - I}{1 + t}$ B) $P = \frac{r - 1}{It}$ C) $P = \frac{I}{rt}$ D) $P = r - It$

19) $5x - 6y = 12$ for y 19) _____

A) $y = \frac{5x - 12}{-6}$ B) $y = \frac{5x - 12}{6}$ C) $y = \frac{5x + 12}{6}$ D) $y = \frac{5x + 12}{-6}$

Solve. Round to one decimal place when necessary.

20) The number 18 is what percent of 96? 20) _____

A) 18.8% B) 533.3% C) 1.9% D) 0.2%

Solve. If needed, round money amounts to two decimal places and all other amounts to one decimal place.

21) Jeans are on sale at the local department store for 15% off. If the jeans originally cost \$41, find the sale price. 21) _____

A) \$6.15 B) \$40.39 C) \$47.15 D) \$34.85

Solve the problem.

22) Seven times a number, added to -3, is 53. Find the number.

A) 392

B) 56

C) 8

D) -8

22) _____

23) The length of a rectangular room is 5 feet longer than twice the width. If the room's perimeter is 142 feet, what are the room's dimensions?

23) _____

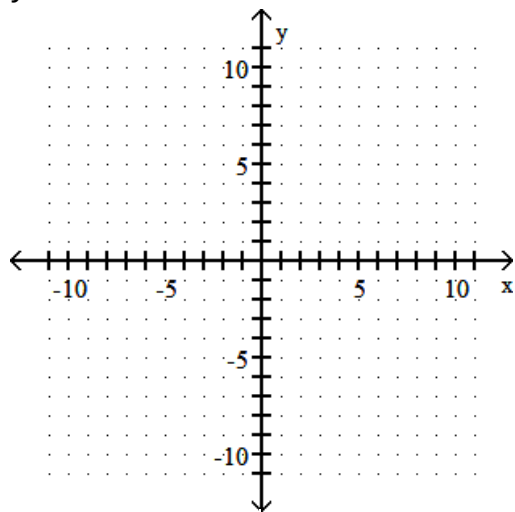
24) The perimeter of a triangle is 48 centimeters. Find the lengths of its sides, if the longest side is 7 centimeters longer than the shorter side, and the remaining side is 2 centimeters longer than the shorter side.

24) _____

Graph.

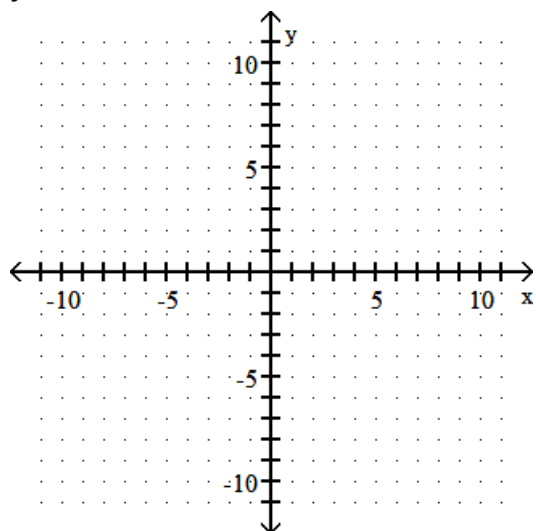
25) $y = 2x$

25) _____



26) $y = 3$

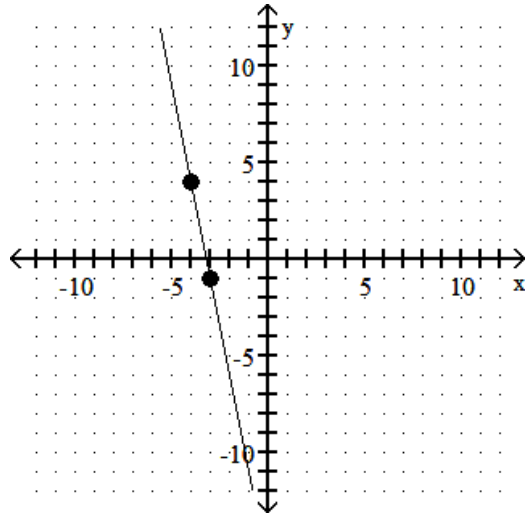
26) _____



Find the slope of the line.

27)

27) _____



- A) $-\frac{1}{5}$ B) -5 C) $\frac{1}{5}$ D) 5

28) Through $(-4, 8)$ and $(9, -7)$

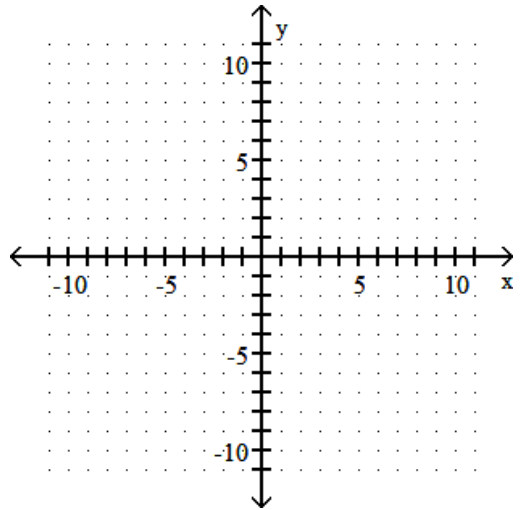
28) _____

- A) $-\frac{15}{13}$ B) $\frac{15}{13}$ C) $\frac{1}{5}$ D) $-\frac{13}{15}$

Graph the linear equation by finding and plotting its intercepts.

29) $-5x - 20y = 20$

29) _____



Provide an appropriate response.

30) Determine the slope and the y-intercept of the graph of $6x - 4y = 24$.

30) _____

- A) $\frac{3}{2}; (0, -6)$ B) $\frac{2}{3}; (0, 4)$ C) $6; (0, 24)$ D) $-\frac{3}{2}; (0, 6)$

Evaluate the expression.

31) $(-4)^3$

31) _____

- A) -12 B) -64 C) 12 D) 64

32) -5^3

32) _____

- A) -125 B) -15 C) 15 D) 125

Simplify the exponential expression. Write the result using only positive exponents.

33) $(2x^8)(-8x^3)$ 33) _____
 A) $16x^{24}$ B) $-16x^{24}$ C) $16x^{11}$ D) $-16x^{11}$

34) $\frac{y^{11}}{y^6}$ 34) _____
 A) y^9 B) $\frac{1}{y^5}$ C) y^5 D) y^{17}

Use the quotient rule to simplify the expression.

35) $\frac{14m^7n^{10}}{7m^6n^6}$ 35) _____
 A) $2n^4$ B) $2mn^4$ C) $2m^{13}n^{16}$ D) $14mn^4$

Perform the indicated operation.

36) $(-9x^3 - 9x^2 + 9x + 7) + (-3x^3 + 7x - 3)$ 36) _____

37) $3x^3 - 9x^2 - 8x + 2 - (7x^3 + 4x^2 - 5x + 9)$ 37) _____

Multiply.

38) $8x^2(6x^2 + 4x - 2)$ 38) _____
 A) $14x^4 + 12x + 6$ B) $48x^4 + 32x - 16$
 C) $48x^4 + 32x^2 - 16$ D) $48x^4 + 32x^3 - 16x^2$

39) $(x - 4)(-2x + 12)$ 39) _____
 A) $-2x^2 - 48x + 20$ B) $-2x^2 + 18x - 48$ C) $-2x^2 + 20x + 20$ D) $-2x^2 + 20x - 48$

40) $(8x - 1)^2$ 40) _____
 A) $64x^2 - 16x + 1$ B) $8x^2 - 16x + 1$ C) $8x^2 + 1$ D) $64x^2 + 1$

41) $(x^2 - 14b)(x^2 + 14b)$ 41) _____
 A) $x^4 - 196b^2$ B) $x^4 - 28x^2b + 196b^2$
 C) $x^2 - 196b^2$ D) $x^4 + 28x^2b + 196b^2$

Divide.

42) $\frac{5x^2 + 3xy - 8x}{15xy}$ 42) _____
 A) $\frac{1}{3y} + \frac{1}{5} - \frac{8x}{15y}$ B) $\frac{x}{3y} + 5 - \frac{8}{15y}$ C) $\frac{x}{3y} + \frac{1}{5y} - \frac{8}{15}$ D) $\frac{x}{3y} + \frac{1}{5} - \frac{8}{15y}$

Factor the polynomial completely. If the polynomial cannot be factored, write "prime."

43) $x^2 + 6x + 8$ 43) _____

44) $y^2 + 16y + 64$

44) _____

45) $y^2 - 6y - 72$

45) _____

46) $5a^2 + 5ab - 8a - 8b$

46) _____

47) $x^2 + 3xy - 10y^2$

47) _____

Find the square root.

48) $\sqrt{9}$

A) 6

B) 1.5

C) 12

D) 3

48) _____

49) $-\sqrt{25}$

A) $\frac{1}{25}$

B) not a real number

C) -5

D) -625

49) _____

Solve the problem.

50) In a triangle, the measure of the first angle is four times the measure of the second angle. The measure of the third angle is 96° more than the second angle. What is the measure of the first angle?

A) 110°

B) 56°

C) 14°

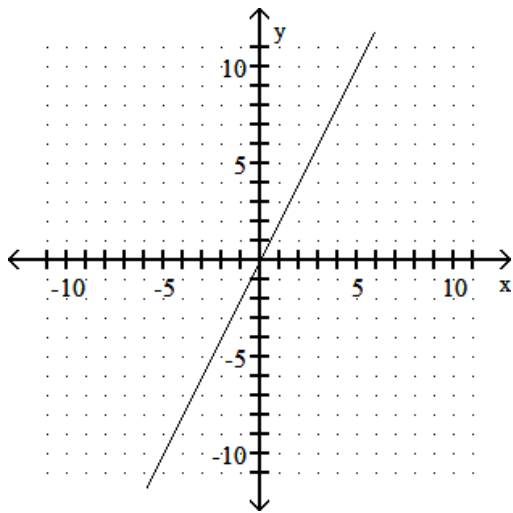
D) 46°

50) _____

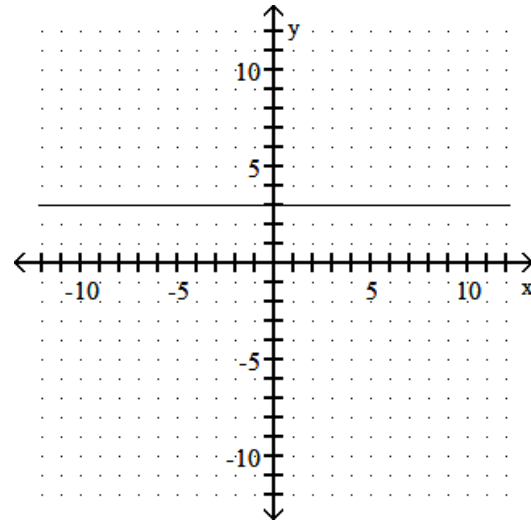
Answer Key

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- 1) C
- 2) D
- 3) C
- 4) A
- 5) C
- 6) D
- 7) D
- 8) D
- 9) B
- 10) B
- 11) B
- 12) C
- 13) C
- 14) B
- 15) B
- 16) D
- 17) B
- 18) C
- 19) B
- 20) A
- 21) D
- 22) C
- 23) Width = 22 ft; length = 49 ft
- 24) 13 cm, 7 cm, 20 cm
- 25)



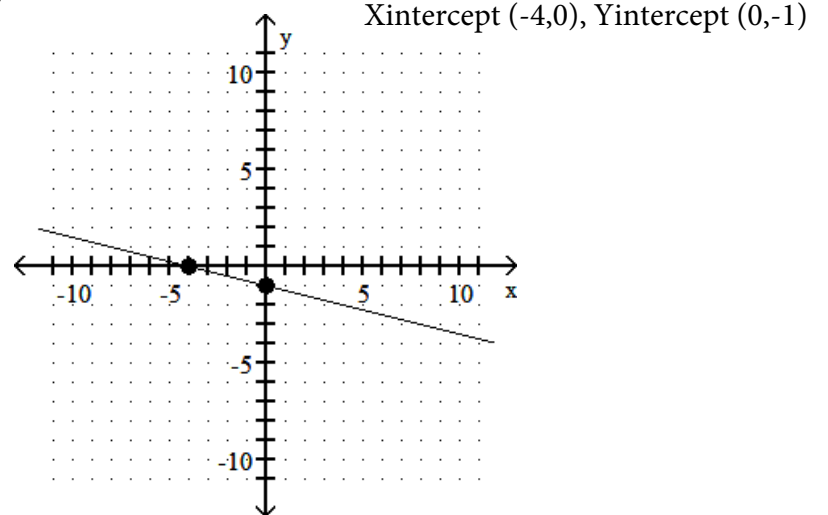
26)



27) B

28) A

29)



30) A

31) B

32) A

33) D

34) C

35) B

36) $-12x^3 - 9x^2 + 16x + 4$

37) $-4x^3 - 13x^2 - 3x - 7$

38) D

39) D

40) A

41) A

42) D

43) $(x + 2)(x + 4)$

44) $(y + 8)^2$

45) $(y - 12)(y + 6)$

46) $(5a - 8)(a + b)$

47) $(x + 5y)(x - 2y)$

48) D

49) C

Answer Key

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50) B