

VARIABLES AND EXPRESSIONS

- | | | | |
|-----------------------------------|----------|----------------------------------|---------|
| a. 4 more than a number | $n + 4$ | b. five less than a number | $x - 5$ |
| c. three less than twice a number | $2y - 3$ | d. the product of 5 and a number | $5a$ |

WRITE AN ALGEBRAIC EXPRESSION FOR EACH VERBAL EXPRESSION

1. seven more than a number

$$\underline{n + 7}$$

2. two less than eight times a number

$$\underline{8n - 2}$$

3. the product of four and a number

$$\underline{4n}$$

4. the quotient of number squared and three

$$\underline{\frac{n^2}{3}}$$

ORDER OF OPERATIONS

Simplify using the order of operations.

5. $2 + 7 \times 5$

$$2 + 35$$

$$37$$

6. $(6 + 25 - 7) \div 6$

$$(31 - 7) \div 6$$

$$24 \div 6$$

$$4$$

7. $(8 + 5) \times \frac{35}{5} + 6$

$$13 \cdot 7 + 6$$

$$91 + 6$$

$$97$$

8. $(2 + 6 \times 2 + 2 - 4) \times 2$

$$(2 + 12 + 2 - 4) \cdot 2$$

$$12 + 2$$

$$24$$

EVALUATE THE FOLLOWING EXPRESSIONS

if $a = -2$, $x = -3$, $y = 4$, $c = 8$ (show some work – be careful!)

9. $3a^2 + xy$ 0

$$3(-2)^2 + -3(4)$$

$$3 \cdot 4 + -12$$

$$12 + -12$$

10. $y - 2c$ -12

$$4 - 2(8)$$

$$4 - 16$$

11. $3x - 5a$ 1

$$3(-3) - 5(-2)$$

$$-9 - -10$$

12. $3y^2$ 48

$$3(4)^2 =$$

$$3 \cdot 16 = 48$$

13. $2x(y + c)$ -72

$$2(-3)(4 + 8)$$

$$-6(12)$$

PROPORTIONS

Use cross products to solve each proportion.

14. $\frac{4}{7} = \frac{5}{x}$ $\frac{4x}{4} = \frac{35}{4}$

$$x = \frac{35}{4} = 8\frac{3}{4}$$

15. $\frac{12.3}{h} = \frac{75}{100}$

$$h = \frac{1230}{75}$$

$$\frac{75h}{75} = \frac{1230}{75}$$

16. There are 20 grams of protein in 3 ounces of fish. How many grams of protein are in 10

ounces of fish?

$$\frac{20g}{3oz} = \frac{x}{10oz}$$

$$\frac{3x}{3} = \frac{200}{3} = 66\frac{2}{3} \text{ grams}$$

GRAPHING POINTS

Graph the following coordinates

on the graph and label them properly.

17. A(-3, 0)

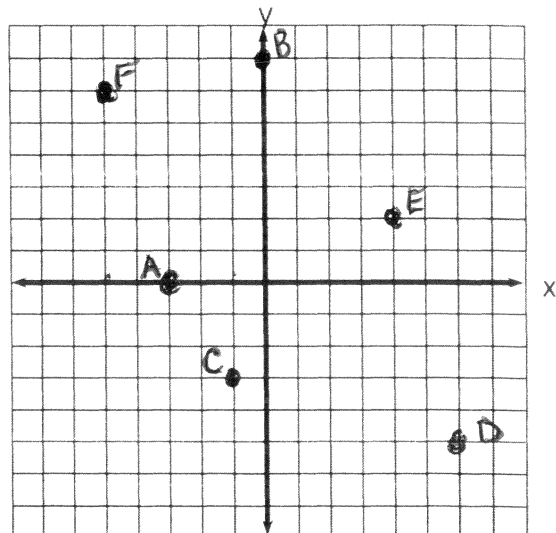
20. D(6, -5)

18. B(0, 7)

21. E(4, 2)

19. C(-1, -3)

22. F(-5, 6)



DISTRIBUTIVE PROPERTY.

Simplify.

$$23. \quad \overbrace{5(x-4)} \\ 5x - 20$$

$$24. \quad -2(x+3) \\ -2x - 6$$

$$25. \quad \overbrace{-7(k-3)} + 11k \\ -7k + 21 + 11k \\ 4k + 21$$

$$26. \quad 19a - (a+6) + 8 \\ \underline{19a} - \underline{a} - \underline{6} + \underline{8} \\ 18a + 2$$

EQUATIONS

Solve each equation.

$$27. \quad x - 13 = -18 \\ +13 \quad +13 \\ x = -5$$

$$28. \quad 4 \cdot -12 = \frac{x}{4} \cdot 4 \\ -48 = x$$

$$29. \quad \frac{-119}{7} = \frac{7n}{7} \\ -17 = n$$

$$30. \quad 6(2b+5) = 15 + 7b \\ 12b + 30 = 15 + 7b \\ -7b \quad -7b \\ 5b + 30 = 15 \\ -30 \quad -30 \\ 5b = -15 \\ \frac{5b}{5} = \frac{-15}{5} \\ b = -3$$

EXPONENTS

Simplify.

$$31. \quad -4n^2 \cdot -3n^4 \\ 12n^6$$

$$32. \quad -2x^3 \cdot 2xy \\ -4x^4y$$

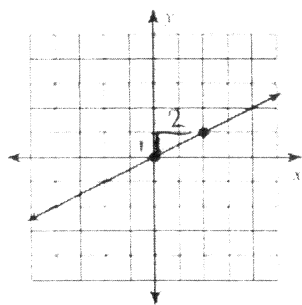
$$33. \quad \frac{48x^5}{3x^2} \quad 16x^3$$

$$34. \quad \overbrace{(3ab^2)^4} \\ 81a^4b^8$$

SLOPE

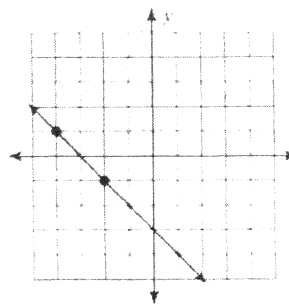
Find the slope of each line. $y = mx + b$

35.



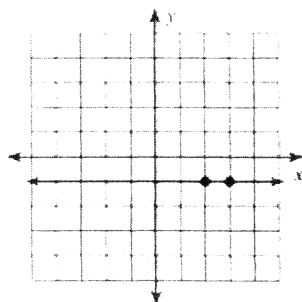
$$m = \frac{1}{2}$$

$$m = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$$



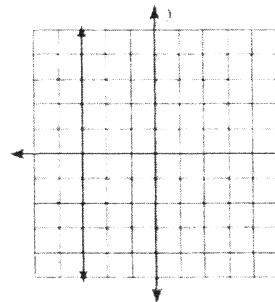
$$m = -1$$

37.



$$m = 0$$

38.



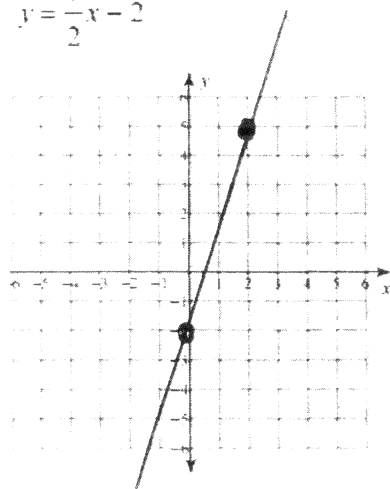
$$m = \text{undefined}$$

GRAPHING LINES

Sketch the graph of each line. Make a table of values for each.

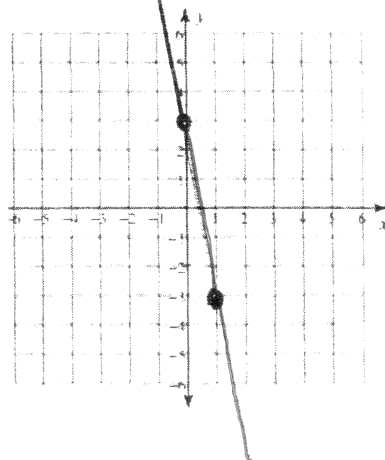
39.

$$y = \frac{7}{2}x - 2$$



40.

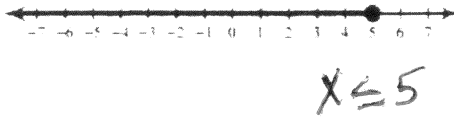
$$y = -6x + 3$$



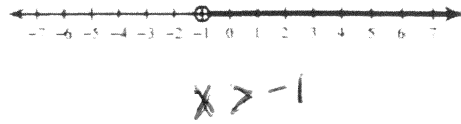
INEQUALITIES

Write an inequality for each graph.

41.

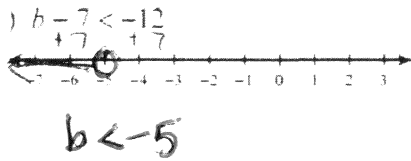


42.

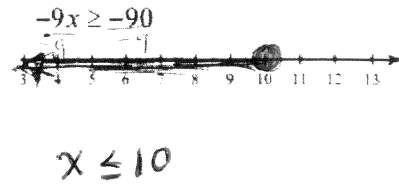


Solve and graph each inequality.

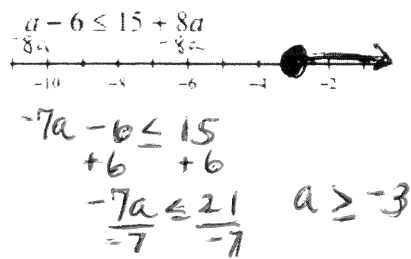
43.



44.



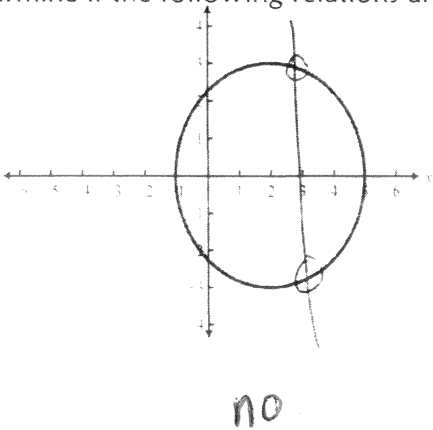
45.



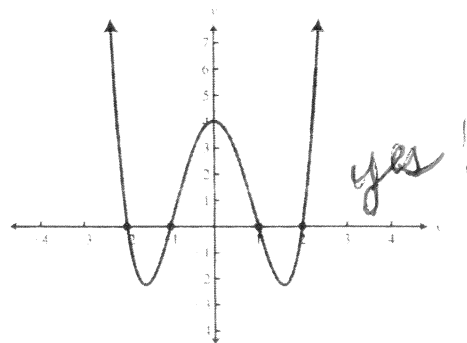
FUNCTIONS

Determine if the following relations are functions. Write yes or no.

46.



47.



48.

x	y
-2	4
-1	4
3	4
6	4

yes

49.

x	y
-2	4
-2	5
0	10
3	14

no

50.

a) Make a table for the function $f(x) = \frac{1}{2}x - 3$ given the domain of the function is $\{-2, 0, 4, 6\}$

x	-2	0	4	6
f(x)	-4	-3	-1	0

$\frac{1}{2}(-2) - 3$ $\frac{1}{2}(0) - 3$ $\frac{1}{2}(4) - 3$ $\frac{1}{2}(6) - 3$

b) Identify the range of the function $\{-4, -3, -1, 0\}$

c) Graph the function.

