7.1 Linear Equations

M. Goodroe - Quantitative Skills and Reasoning

Key Terms:

Linear Equation
Standard Form
Slope
Slope-Intercept Form
Solution
Ordered Pair
Equivalent
x-Intercept & *y*-Intercept
Line of Best Fit
Linear Regression

Name:_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the equation by applying the rules for rewriting equations and "check" your solution.

1) $2x + 2 = 5x - 7$

2) $\frac{1}{5}x + 3 = \frac{3}{10}x - 8$

Solve the equation by applying the rules for rewriting equations.

3) $0.2x + 3 = 3x - 0.6$

Solve the equation for the specified variable.

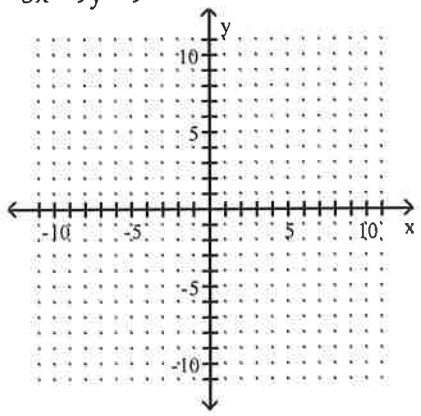
4) $I = \frac{nE}{nr + R}$ for n

5) $A = \frac{1}{2}h(b + B)$ for b

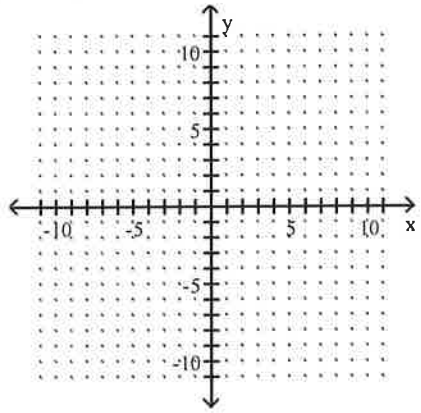
6) $P = 2L + 2W$ for L

Find the x- and y-intercepts for the equation. Then graph the equation.

7) $-3x - 9y = 9$



8) $3x - 6y = 0$



Find the slope of the line passing through the two given points. Note: What does the Slope value *mean*?

9) (-6, -7) and (-2, 8)

10) (7, -7) and (7, 3)

11) (-5, -5) and (3, 7)

State the y-intercept and slope of the graph of the given equation.

12) $y = 5x - 4$

13) $y = -5x + 9$

Solve the problem.

14) The cost to rent a power-wash machine from the hardware store depends on the number of hours the machine is rented. The ordered pair (2, 52) indicates that it costs \$52 to rent the machine for 2 hours, and the ordered pair (8, 208) indicates that it costs \$208 to rent it for 8 hours.

a) Write a linear equation giving the cost, y, in terms of the number of hours x.
b) Use the equation found in part a to find how much it costs to rent for 11 hours.
c) How many hours could you rent for a cost of \$598?

15) An office desk costs $7000. After 5 years, it depreciates to a value of $5500. Assuming linear depreciation, answer the following.

a) Write a linear equation that gives the value of the desk, y, in terms of the number of years after it was purchas
b) Using the equation found in part a, find the value of the desk after 9 years.
c) After how many years would the desk have no value?

Interpret the meaning of the slope and the y-intercept of the equation in terms of the conditions stated in the problem.

16) The cost, in dollars, of retaining the services of a computer repairman in Anchorville is given by $y = 42x + 32$, where x is the number of hours worked.

17) The value, in dollars, of a particular KX37B computer is given by $y = -425.15x + 5933$, where x is the number of years the computer has been in existence.

Solve the problem.

18) College students can purchase points for use in the food service areas instead of cash. If you initially pay the basic food service fee of $45, then points can be purchased for 30 cents each; otherwise, points cost 60 cents each. How many points must you use in order for it to be cheaper to pay the basic food service fee?