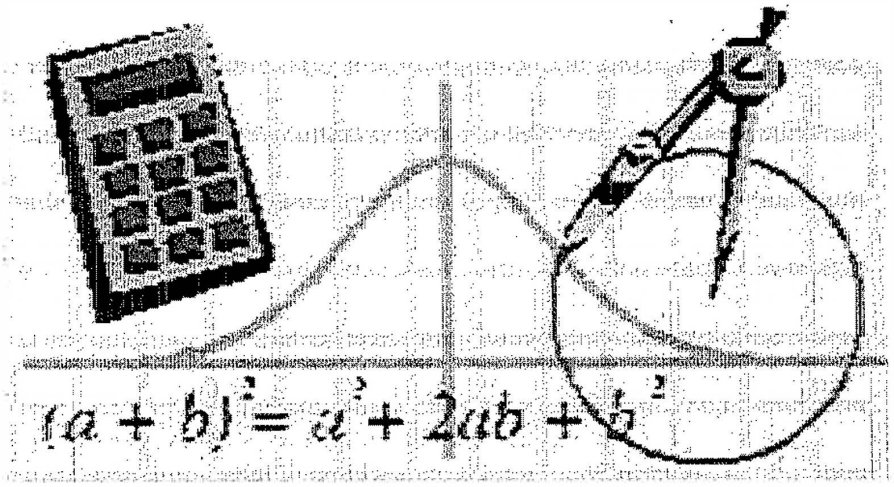
Downingtown High School

East/West

Keystone Algebra 1 Review

Module 1

Linear Equations



1. Blade-Z manufactures roller blades. The production facility has fixed costs of $300 a day and total production costs of $3,300 per day at an output of 100 pair of skates per day. Which of the following equations represents the daily production cost for Blade-Z based on the number of skates manufactured?

   (Let $C(x)$ represent the daily production cost and x represent the number of pairs of skates manufactured.)

   A. $C(x) = 33x + 300$
   B. $C(x) = 30x - 300$
   C. $C(x) = 30x + 300$
   D. $C(x) = 33x$

2. Meghann is completing her chemistry and geometry homework. Each chemistry assignment has x problems, and each geometry assignment has y problems. She must complete a total of 81 problems. The equation below describes the relationship between the number of chemistry problems and the number of geometry problems.

$$5x + 3y = 81$$

   The ordered pair (9, 12) is a solution of the equation. What does the solution (9, 12) represent?

   A. Each chemistry assignment contains 9 problems and each geometry assignment contains 12 problems.
   B. Meghann must complete 3 more geometry assignments than chemistry assignments.
   C. Meghann must spend 9 minutes on her chemistry homework and 12 minutes on her geometry homework.
   D. Meghann must complete 9 more chemistry assignments than geometry assignments.

3. A rental car company charges a base fee of $50.47 plus $0.50 per mile driven. If x represents the number of miles driven, which of the following equations could be used to find y, the total cost of the bill?

A. $\$0.80x + \$50.\ y = 47$

B. $y = \$50.47x + \$0.50$

C. $y = \$50.97x$

D. $y = \$0.50x + \$50.47$

4. Solve for x. $9x - 5 = 6x + 9x + 10$

A. $x = \frac{5}{18}$

B. $x = -\frac{5}{18}$

C. $x = \frac{5}{2}$

D. $x = -\frac{5}{2}$

5. The steps John used to solve an equation are shown below.

Solve: $0.4x + 5 + 0.2x = 17$

Step 1: $0.4x + 0.2x + 5 = 17$

Step 2: $0.6x + 5 = 17$

Step 3: $0.6x = 12$

Step 4: $x = 20$

Which properties justify Step 1 and Step 3?

A. Step 1: Distributive Property
Step 3: Division Property of Equality

B. Step 1: Distributive Property
Step 3: Subtraction Property of Equality

C. Step 1: Commutative Property of Equality
Step 3: Division Property of Equality

D. Step 1: Commutative Property of Addition
Step 3: Subtraction Property of Equality

6. What is a solution to the linear equation $\frac{3}{4}x-5=10$

A. $x=\frac{15}{4}$ B. $x=\frac{20}{3}$ C. $x=\frac{45}{4}$ D. $x=20$

7. Which is a correct step in solving the following equation for x?

$$-1.75+2(2-x)=0$$

A. $2(2-x)=-1.75$

B. $-2x=1.75-4$

C. $4-x=1.75$

D. $x=-2.25\div 2$

8. Use elimination to find the solution to the system of equations.

$$5x+y=10$$
$$2x-3y=4$$

A. $x=14, y=8$

B. $x=2, y=0$

C. $x=-4, y=4$

D. $x=-4, y=30$

9. Use substitution to solve for x in the system of equations.

$$11x+2y=30$$
$$4x+y=9$$

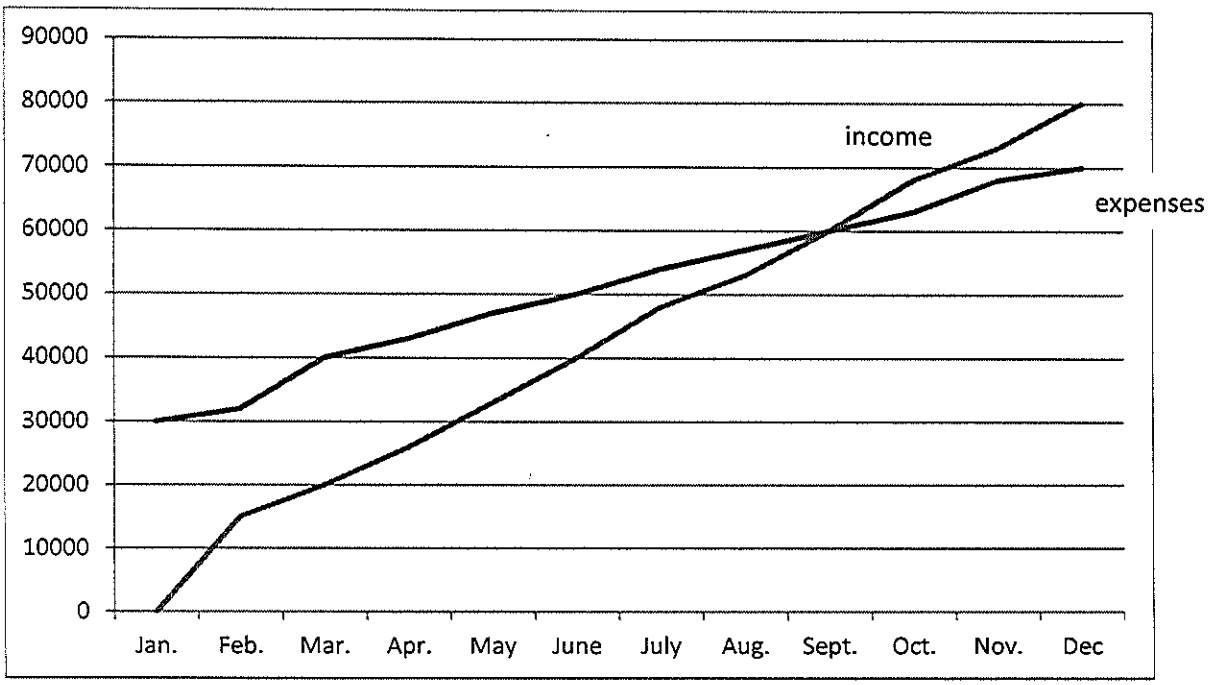
A. $x=4$

B. $x=10$

C. $x=-4$

D. $x=8$

10. The equations representing income and expenses for Tom's candy store are shown in the graph below.



$$Income: 20,000x - 3y = 0$$
$$Expenses: 10,000x - 3y + 90,000 = 0$$

Let *x* represent the month and *y* represent the amount in dollars. In which month were the store's expenses greater than its income?

A. November

B. September

C. August

D. October

11. Reid and Sharon work in two different clothing stores. Reid's store sells shirts for $14 each and pants for $39 each. Sharon's store sells shirts for $12 each and pants for $44 each.

One day, Reid sold $145 worth of shirts and pants, and Sharon sold the same number of shirts and pants, but her sales were worth $156. When x is the number of shirts sold and y is the number of pants sold, the situation can be modeled by a system of linear equations.

A. Write the two equations that form the system of equations which models the information above.

Equations: _____ _____

B. Use the equations found in Part A to determine how many shirts and pants Reid sold.

Shirts: _____

Pants: _____

C. On another day, Reid and Sharon each sold 5 shirts and 2 pants. Who sold the greatest dollar amount of merchandise? Write an equation and explain your answer.