

- The point (20, 80) is not on the line. Buying 20 pounds of beans and 80 pounds of rice costs $2(20) + 0.50(80)$ or 80, which does not equal 120. This combination costs less than what we intend to spend.
- The point (70, 180) means that we buy 70 pounds of beans and 180 pounds of rice. It will cost $2(70) + 0.50(180)$ or 230, which is over our budget of 120.

Lesson 5 Practice Problems

Problem 1

Statement

Select all the points that are on the graph of the equation $4y - 6x = 12$.

- A. (-4, -3)
- B. (-1, 1.5)
- C. (0, -2)
- D. (0, 3)
- E. (3, -4)
- F. (6, 4)

Solution

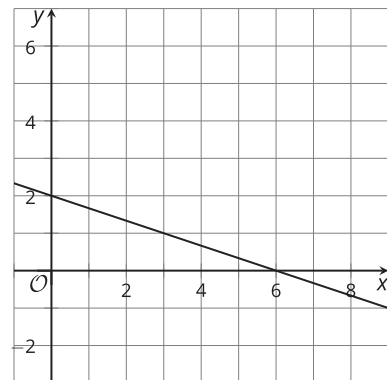
["A", "B", "D"]

Problem 2

Statement

Here is a graph of the equation $x + 3y = 6$.

Select all coordinate pairs that represent a solution to the equation.



- A. (0, 2)
- B. (0, 6)
- C. (2, 6)
- D. (3, 1)
- E. (4, 1)
- F. (6, 2)

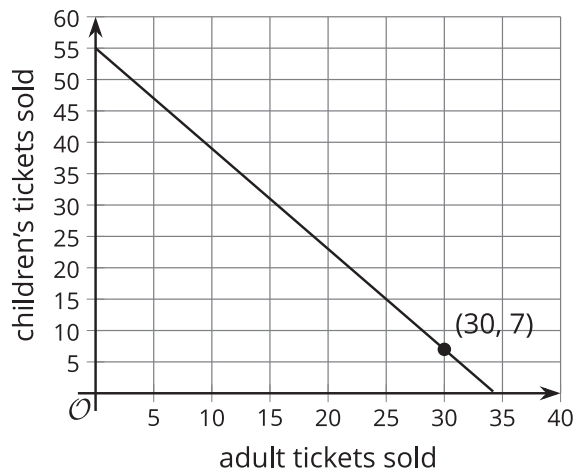
Solution

["A", "D"]

Problem 3

Statement

A theater is selling tickets to a play. Adult tickets cost \$8 each and children's tickets cost \$5 each. They collect \$275 after selling x adult tickets and y children's tickets.



What does the point (30, 7) mean in this situation?

Solution

It means that 30 adult tickets and 7 children's tickets were sold.

Problem 4

Statement

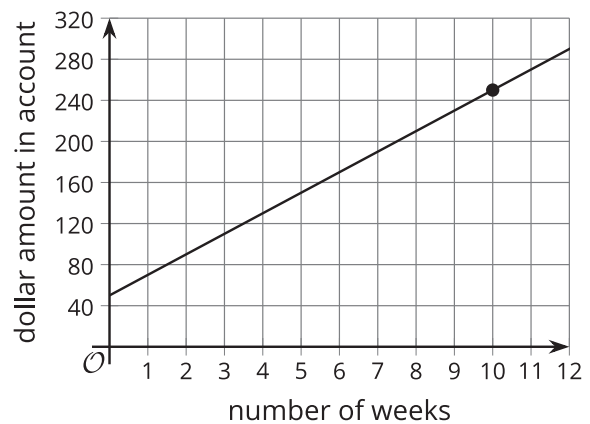
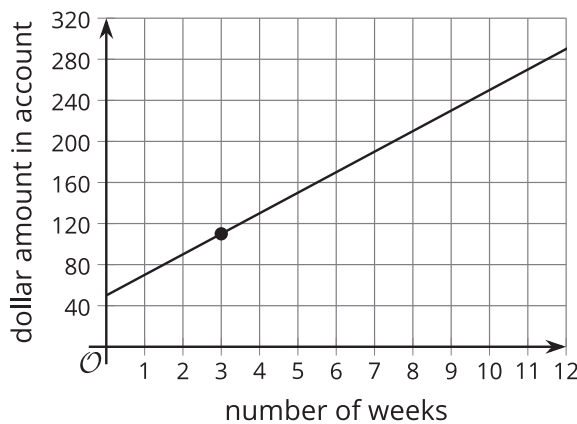
Technology required. Priya starts with \$50 in her bank account. She then deposits \$20 each week for 12 weeks.

- a. Write an equation that represents the relationship between the dollar amount in her bank account and the number of weeks of saving.

- b. Graph your equation using graphing technology. Mark the point on the graph that represents the amount after 3 weeks.
- c. How many weeks does it take her to have \$250 in her bank account? Mark this point on the graph.

Solution

- a. Sample response: $d = 50 + 20w$ where d is the dollar amount in bank account and w is the number of weeks.
- b. See first graph.
- c. 10 weeks. See second graph.



Problem 5

Statement

During the month of August, the mean of the daily rainfall in one city was 0.04 inches with a standard deviation of 0.15 inches. In another city, the mean of the daily rainfall was 0.01 inches with a standard deviation of 0.05 inches.

Han says that both cities had a similar pattern of precipitation in the month of August. Do you agree with Han? Explain your reasoning.

Solution

Sample response. Yes, Han is correct. Both cities had very little rain on a daily basis. The large standard deviation means that the rain came all at once or possibly just on a few days. Although one city had more rain than the other, this pattern of most days being dry and a few days being wet is the same in both cities.

(From Unit 1, Lesson 13.)

Problem 6

Statement

In a video game, players form teams and work together to earn as many points as possible for their team. Each team can have between 2 and 4 players. Each player can score up to 20 points in each round of the game. Han and three of his friends decided to form a team and play a round.

Write an expression, an equation, or an inequality for each quantity described here. If you use a variable, specify what it represents.

- the allowable number of players on a team
- the number of points Han's team earns in one round if every player earns a perfect score
- the number of points Han's team earns in one round if no players earn a perfect score
- the number of players in a game with six teams of different sizes: two teams have 4 players each and the rest have 3 players each
- the possible number of players in a game with eight teams

Solution

Sample response:

- $p \geq 2$ and $p \leq 4$ (or $2 \leq p \leq 4$), where p is the number of players on a team
- $4(20)$
- $S < 80$, where S is the score of the team
- $2(4) + 4(3)$
- $T \leq 32$ (or $16 \leq T$), where T is the total number of players in a game

(From Unit 2, Lesson 1.)

Problem 7

Statement

A student on the cross-country team runs 30 minutes a day as a part of her training.

Write an equation to describe the relationship between the distance she runs in miles, D , and her running speed, in miles per hour, when she runs:

- at a constant speed of 4 miles per hour for the entire 30 minutes

- b. at a constant speed of 5 miles per hour the first 20 minutes, and then at 4 miles per hour the last 10 minutes
- c. at a constant speed of 6 miles per hour the first 15 minutes, and then at 5.5 miles per hour for the remaining 15 minutes
- d. at a constant speed of a miles per hour the first 6 minutes, and then at 6.5 miles per hour for the remaining 24 minutes
- e. at a constant speed of 5.4 miles per hour for m minutes, and then at b miles per hour for n minutes

Solution

Equations that are equivalent to these are also acceptable.

- a. $D = 4\left(\frac{1}{2}\right)$
- b. $D = 5\left(\frac{1}{3}\right) + 4\left(\frac{1}{6}\right)$
- c. $D = 6\left(\frac{1}{4}\right) + 5.5\left(\frac{1}{4}\right)$
- d. $D = a\left(\frac{1}{10}\right) + 6.5\left(\frac{4}{10}\right)$
- e. $D = 5.4\left(\frac{m}{60}\right) + b\left(\frac{n}{60}\right)$

(From Unit 2, Lesson 2.)

Problem 8

Statement

In the 21st century, people measure length in feet and meters. At various points in history, people measured length in hands, cubits, and paces. There are 9 hands in 2 cubits. There are 5 cubits in 3 paces.

- a. Write an equation to express the relationship between hands, h , and cubits, c .
- b. Write an equation to express the relationship between hands, h , and paces, p .

Solution

Sample responses:

- a. $4.5h = c$
- b. $7.5h = p$

(From Unit 2, Lesson 3.)

Problem 9

Statement

The table shows the amount of money, A , in a savings account after m months.

Select **all** the equations that represent the relationship between the amount of money, A , and the number of months, m .

number of months	dollar amount
5	1,200
6	1,300
7	1,400
8	1,500

- A. $A = 100m$
- B. $A = 100(m - 5)$
- C. $A - 700 = 100m$
- D. $A - 1,200 = 100m$
- E. $A = 700 + 100m$
- F. $A = 1200 + 100m$
- G. $A = 1,200 + 100(m - 5)$

Solution

["C", "E", "G"]

(From Unit 2, Lesson 3.)