Lesson 7 Practice Problems

Problem 1

Statement

Match each equation with an equivalent equation. Some of the answer choices are not used.

A. $3x + 6 = 4x + 7$

B. $3(x + 6) = 4x + 7$

C. $4x + 3x = 7 - 6$

1. $9x = 4x + 7$
2. $3x + 18 = 4x + 7$
3. $3x = 4x + 7$
4. $3x - 1 = 4x$
5. $7x = 1$

Solution

- A: 4
- B: 2
- C: 5

Problem 2

Statement

Mai says that equations A and B have the same solution.

- Equation A: $-3(x + 7) = 24$
- Equation B: $x + 7 = -8$

Which statement explains why this is true?

A. Adding 3 to both sides of Equation A gives $x + 7 = -8$.

B. Applying the distributive property to Equation A gives $x + 7 = -8$.

C. Subtracting 3 from both sides of Equation A gives $x + 7 = -8$.

D. Dividing both sides of Equation A by -3 gives $x + 7 = -8$.

Solution

D

Problem 3

Statement

Is 0 a solution to $2x + 10 = 4x + 10$? Explain or show your reasoning.

Solution

It is a solution because $2 \cdot 0 + 10 = 10$ and $4 \cdot 0 + 10 = 10$.

Problem 4

Statement

Kiran says that a solution to the equation $x + 4 = 20$ must also be a solution to the equation $5(x + 4) = 100$.

Write a convincing explanation as to why this is true.

Solution

Sample response: The two equations are equivalent. Multiplying $x + 4 = 20$ by 5 gives $5(x + 4) = 100$. Multiplying both sides of an equation by the same number keeps the two sides equal, so the value of x that is a solution to the first equation is still a solution to the second equation.

Problem 5

Statement

The entrepreneurship club is ordering potted plants for all 36 of its sponsors. One store charges $8.50 for each plant plus a delivery fee of $20. The equation $320 = x + 7.50(36)$ represents the cost of ordering potted plants at a second store.

What does the x represent in this situation?

A. The cost for each potted plant at the second store

B. The delivery fee at the second store

C. The total cost of ordering potted plants at the second store

D. The number of sponsors of the entrepreneurship club

Solution

B

(From Unit 2, Lesson 4.)

Problem 6

Statement

Which equation is equivalent to the equation $5x + 30 = 45$?

A. $35x = 45$

B. $5x = 75$

C. $5(x + 30) = 45$

D. $5(x + 6) = 45$

Solution

D

(From Unit 2, Lesson 6.)

Problem 7

Statement

The environmental science club is printing T-shirts for its 15 members. The printing company charges a certain amount for each shirt plus a setup fee of $20.

If the T-shirt order costs a total of $162.50, how much does the company charge for each shirt?

Solution

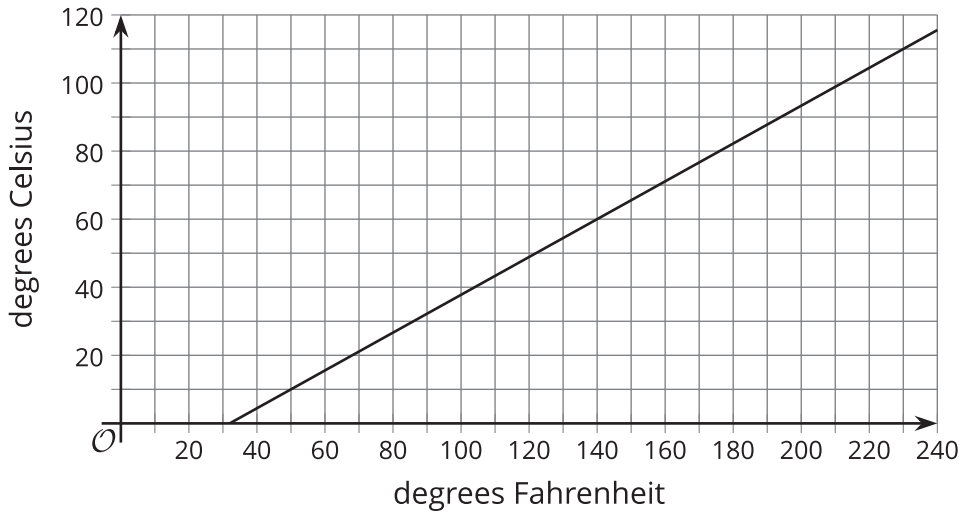
$9.50

(From Unit 2, Lesson 4.)

Problem 8

Statement

The graph shows the relationship between temperature in degrees Celsius and temperature in degrees Fahrenheit.



a. Mark the point on the graph that shows the temperature in Celsius when it is 60 degrees Fahrenheit.

b. Mark the point on the graph that shows the temperature in Fahrenheit when it is 60 degrees Celsius.

c. Water boils at 100 degrees Celsius. Use the graph to approximate the boiling temperature in Fahrenheit, or to confirm it, if you knew what it is.

d. The equation that converts Fahrenheit to Celsius is $C = \frac{5}{9}(F - 32)$. Use it to calculate the temperature in Celsius when it is 60 degrees Fahrenheit. (This answer will be more exact than the point you found in the first part.)

Solution

a. point at $(60, 15.5)$

b. point at $(140, 60)$

c. 212 degrees Fahrenheit

d. $\frac{140}{9}$ or $15.\overline{5}$ degrees Celsius

(From Unit 2, Lesson 5.)

Problem 9

Statement

Select **all** the equations that have the same solution as $2x - 5 = 15$.

A. $2x = 10$

B. $2x = 20$

C. $2(x - 5) = 15$

D. $2x - 20 = 0$

E. $4x - 10 = 30$

F. $15 = 5 - 2x$

Solution

["B", "D", "E"]
(From Unit 2, Lesson 6.)

Problem 10

Statement

Diego's age d is 5 more than 2 times his sister's age s. This situation is represented by the equation $d = 2s + 5$. Which equation is equivalent to the equation $d = 2s + 5$?

A. $d = 2(s + 5)$

B. $d - 5 = 2s$

C. $d - 2 = s + 5$

D. $\frac{d}{2} = s + 5$

Solution

B
(From Unit 2, Lesson 6.)