

Part 1: Write an equation to represent the situation and solve. Show your steps.

- 1) Cecile packages snack mix at a health food store. She uses $\frac{1}{3}$ of her supply of sunflower seeds to make a salted snack mix and $\frac{2}{9}$ of her supply to make an unsalted snack mix. If Cecile uses 10 pounds of sunflower seeds, how many pounds of seeds are in her supply?

$$\frac{1}{3}x + \frac{2}{9}x = 10$$

$$\frac{3}{9}x + \frac{2}{9}x = 10$$

$$\frac{5}{9}x = 10$$

$$x = 10 \cdot \frac{9}{5}$$

$$x = 18$$

$$\frac{1}{3}x + \frac{2}{9}x = 10$$

$$3x + 2x = 90$$

$$5x = 90$$

$$x = \frac{90}{5}$$

$$x = 18$$

Cecile has 18 pounds of seeds in her supply.

- 2) A music shop charges deposit of \$20, plus a monthly rate of \$30 to rent an instrument. For how many months did Avi rent an instrument if he spent a total of \$80?

$$20 + 30m = 80$$

$$30m = 80 - 20$$

$$30m = 60$$

$$m = \frac{60}{30}$$

$$m = 2$$

Avi rented the instrument for 2 months.

Math Book

- 3) Page 115 #3
4) Page 115 #6

Part 2: Solve the equation. Show your steps.

5) $-0.2(x - 20) = 44 - x$

$$-0.2x + 4 = 44 - x$$

$$-0.2x + x = 44 - 4$$

$$0.8x = 40$$

$$x = \frac{40}{0.8}$$

$$x = 50$$

6) $\frac{1}{5}x + \frac{3}{10}x = 9 - 6.7x$

$$0.2x + 0.3x = 9 - 6.7x$$

$$0.5x + 6.7x = 9$$

$$7.2x = 9$$

$$x = \frac{9}{7.2}$$

$$x = 1.25$$

$$\frac{1}{5}x + \frac{3}{10}x = 9 - 6.7x$$

$$2x + 3x = 90 - 67x$$

$$5x = 90 - 67x$$

$$5x + 67x = 90$$

$$72x = 90$$

$$x = \frac{90}{72} = \frac{5}{4}$$

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- 7) Page 115 #5
8) Page 115 #2

9) $\frac{3}{4}x + x - 5 = 10 + 2x$

$$0.75x + x - 5 = 10 + 2x$$

$$1.75x - 5 = 10 + 2x$$

$$1.75x - 2x = 10 + 5$$

$$-0.25x = 15$$

$$x = \frac{15}{-0.25}$$

$$x = -60$$

10) $3x - 2.7 = 2x + 2.7 + x$

$$3x - 2.7 = 3x + 2.7$$

$$3x - 3x = 2.7 + 2.7$$

$$0 = 5.4$$

No Solution

11) $9x + 4.5 - 2x = 2.3 + 7x + 2.2$

$$7x + 4.5 = 7x + 4.5$$

$$7x - 7x = 4.5 - 4.5$$

$$0 = 0$$

Infinitely Many Solutions

12) $0.2x - 7 = \frac{3}{4} + 2x - 25.75$

$$0.2x - 7 = 2x - 25.75 + 0.75$$

$$0.2x - 7 = 2x - 25$$

$$0.2x - 2x = -25 + 7$$

$$-1.8x = -18$$

$$x = \frac{-18}{-1.8}$$

$$x = 10$$

A. One Solution

B. No Solution

C. Infinitely Many Solutions

Part 3: Match each equation to its number of solutions.

13) B $-2(3x - 1) = -6x - 1$

$$-6x + 2 = -6x - 1$$

14) C $2(3x - 1) = 6x - 2$

$$6x - 2 = 6x - 2$$

15) A $2(3x - 1) = -6x - 2$

$$6x - 2 = -6x - 2$$

$$6x + 6x = 2 - 2$$

$$12x = 0$$

$$x = 0$$

Name: _____

MID-TOPIC CHECKPOINT

TOPIC
2

1. **Vocabulary** How can you determine the number of solutions for an equation? *Lesson 2-4*

2. Solve the equation $-\frac{2}{3}d - \frac{1}{4}d = -22$ for d . *Lesson 2-1*

$$-\frac{8}{12}d - \frac{3}{12}d = -22$$

$$-\frac{11}{12}d = -22 \left(\frac{12}{-11}\right)$$

$$d = 24$$

OR

$$\begin{array}{r} \cdot 12 \quad \cdot 12 \quad \cdot 12 \\ -\frac{2}{3}d - \frac{1}{4}d = -22 \\ -8d - 3d = 264 \\ -11d = 264 \\ \frac{-11d}{-11} = \frac{264}{-11} \\ d = 24 \end{array}$$

3. Edy has \$450 in her savings account. She deposits \$40 each month. Juan has \$975 in his checking account. He writes a check for \$45.45 each month for his cell phone bill. He also writes a check for \$19.55 each month for his water bill. After how many months will Edy and Juan have the same amount of money in their accounts? *Lesson 2-2*

The have the same amount of money in 5 months.

$$\begin{array}{l} 450 + 40m = -45.45m - 19.55m + 975 \\ 450 + 40m = 975 - 65m \\ 65m + 40m = 975 - 450 \\ 105m = 525 \\ m = 5 \end{array}$$

4. Which equation has infinitely many solutions? *Lesson 2-4*

- (A) $\frac{3}{4}x + x - 5 = 10 + 2x$
- (B) $3x - 2.7 = 2x + 2.7 + x$
- (C) $9x + 4.5 - 2x = 2.3 + 7x + 2.2$
- (D) $\frac{1}{5}x - 7 = \frac{3}{4} + 2x - 25\frac{3}{4}$

5. Solve the equation $-4(x - 1) + 6x = 2(17 - x)$ for x . *Lesson 2-3*

$$-4x + 4 + 6x = 34 - 2x$$

$$2x + 4 = 34 - 2x$$

$$2x + 2x = 34 - 4$$

$$4x = 30$$

$$x = 7.5$$

6. Hakeem subtracted 8 from a number, then multiplied the difference by $\frac{4}{5}$. The result was 20. Write and solve an equation to find the number, x . *Lesson 2-3*

$$(x - 8) \frac{4}{5} = 20$$

$$\text{or } (x - 8)(0.8) = 20$$

$$\frac{4}{5}x - \frac{32}{5} = 20$$

$$0.8x - 6.4 = 20$$

$$0.8x = 20 + 6.4$$

$$0.8x = 26.4$$

$$x = 33$$

$$4x - 32 = 100$$

$$4x = 132$$

$$x = 33$$

How well did you do on the mid-topic checkpoint? Fill in the stars.

