Name: _____ Date: _____

BLM 8–14

Chapter 8 Test

For #1 to 3, choose the best answer.

1. What is the solution for the equation $-4(2x - 3) = -6$?

A $-3\frac{1}{2}$ **B** $-2\frac{1}{4}$ **C** $2\frac{1}{4}$ **D** $3\frac{1}{2}$

2. Andrea determined that the solution to the equation $6(3x - 1) = 4(4x - 5)$ is $x = 7$. Two possible methods for verifying Andrea's solution are started below.

Method 1:
$4(4x - 5) = 6(3x - 1)$
$16x - 20 = 18x - 6$
$-2x = -14$

Method 2:
$6(3x - 1) = 4(4x - 5)$
$6[3(7) - 1] = 4[4(7) - 5)$

A Method 1 is the best procedure to verify that Andrea's solution is correct.
B Method 2 is the best procedure to verify that Andrea's solution is correct.
C Method 1 is the best procedure to verify that Andrea's solution is incorrect.
D Method 2 is the best procedure to verify that Andrea's solution is incorrect.

3. Manuel was asked to solve the equation $2(8 - x) = 4(2x + 4)$ for x. His solution is shown below.

$2(8 - x) = 4(2x + 4)$
$8 - x = 2(2x + 4)$ Step 1
$8 - x = 4x + 8$ Step 2
$0 = 5x$ Step 3
The solution is undefined. Step 4

Which of the following would be a correct statement about the solution?
A There is an error in Step 1. **B** There is an error in Step 2.
C There is an error in Step 3. **D** There is an error in Step 4.

Complete the statements in #4 to 7.

4. The solution to the equation $5x = 65$ is _____.

5. The value of y, to the nearest tenth, that would make the equation $\frac{17.01}{y} = 6.3$ true is _____.

6. The solution to the equation $-\frac{x}{8} - 16 = 9$ is _____.

7. The solution expressed in the form $\frac{a}{b}$ for the equation $3\frac{1}{4} = 5z$ is _____.

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Short Answer

8. Determine the solution for the variable in each of the following equations.

a) $7x - 19 = 86$

b) $\frac{2x}{3} + 4 = -2$

c) $5.6x = 3.2x + 13.2$

d) $-4x + 21 = -7x - 15$

Extended Response

9. Frank has a job at the bottle return depot. He earns \$8 an hour plus 15¢ for every box of 1000 recycled containers he counts. On Wednesday, Frank worked for 7 h and earned \$108.50.

a) Write an equation with one variable that could be used to determine how many boxes of 1000 recycled containers Frank counted.

b) Solve your equation to determine how many boxes of 1000 recycled containers Frank counted on Wednesday.

10. Alexandra was given an equation to solve. Her teacher gave her a hint that the solution is an integer. Alexandra's partial solution is shown below.

$$\begin{aligned} 4(x - 5) - 16 &= 0 \\ 4(x - 5) &= 16 \\ 4x - 5 &= 16 \\ 4x &= 21 \end{aligned}$$

a) Alexandra determined that her solution would not be an integer. Identify where Alexandra made her mistake.

b) Correct Alexandra's mistake. Then, solve the equation to determine the solution for the variable x.

11. Most bats find their way around by making high-frequency sounds, which reflect back to them off surrounding objects. A bat can emit a sound wave that travels at a speed of 342 m/s. Speed, s, can be represented by the formula, $s = \frac{d}{t}$, where d is the distance, in metres, and t is the time, in seconds.

a) Write an equation that can be used to determine how many metres a bat is away from an object if it takes 0.3 s for the sound wave to travel to the object and back.

b) How far is the bat from the object?

c) If a bat is 30 m from your house, how many seconds will it take for the bat to emit and receive a sound wave? Round your answer to the nearest hundredth of a second.