

CH3, L4 – SOLVING EQUATIONS

Big Idea:

Think About It: Given the equation $3(x - 7) = 24$, determine the value of x and mathematically prove that the solution is correct.

Solve	Check

Partner Practice: (*Low Difficulty*)

1. Solve the equation $r + 11 + 8r = 29$

Solve	Check

2. Solve the equation $30 = -5(6n + 6)$

Solve	Check

3. Which equation will have the same solution as the equations $3(4x - 4) = 2x + 2(3x - 2)$?
- a) $12x - 4 = 8x - 2$
 - b) $12x - 12 = 8x - 2$
 - c) $12x - 12 = 5x - 4$
 - d) $12x - 12 = 8x - 4$

Partner Practice: (Medium Difficulty)

4. Solve the equation $8(1 - 5x) + 5 = -77 + 5x$

Solve	Check

5. Write an equation that will have the same solution as $\frac{1}{2}(6 - x) = -\frac{5}{2}x - 8$. (Hint: write the equation given without fractions.)

6. Prove your answer is correct to the previous problem

7. Solve the equation $\frac{1}{5}(3m - 6) = 2 - m$ two different ways to get the same answer.

Solved one way	Solved another way

8. Three scholars solved the equation $2(3x - 8) = 32$ in different ways, but each arrived at the correct solution. Identify all of the solutions that show a correct method for solving the equation. Explain the difference between the correct methods and the incorrect methods.

Scholar 1:

$$\frac{1}{2} \cdot 2(3x - 8) = 32 \cdot \frac{1}{2}$$

$$3x - 8 = 16$$

$$3x = 24$$

$$x = 8$$

Scholar 2:

$$2(3x - 8) = 32$$

$$5x - 8 = 32$$

$$5x = 40$$

$$x = 8$$

Scholar 3:

$$2(3x - 8) = 32$$

$$\frac{6x}{6} - \frac{16}{6} = \frac{32}{6}$$

$$x = \frac{48}{6}$$

$$x = 8$$

9. Determine the solution to the equation $\frac{1}{4}(1 + n) = 28 - 15$.

Solve	Check

10. Which equation has the same solution as $\frac{1}{2}(3n - 4) = n + 1$?

- a) $3n - 4 = 2n + 5$
- b) $3n - 4 = 2n + 8$
- c) $3n - 4 = 2n + 2$
- d) $3n - 4 = 2n + 4$

Partner Practice: (*Hard Difficulty*)

<p>11. Solve the equation $-0.5\left(\frac{2}{3}x - \frac{3}{4}\right) - 3.5x = -\frac{83}{24}$</p>	<p>12. Solve the equation $2p + 3q = \frac{r}{s}$ in terms of the variable, "p". Then evaluate your equation in number 9 for q=4.5, r=10, and s=5</p>
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1. Inverse operations are used
2. Equation is kept balanced throughout entire process
3. Equation is solved vertically and all work shown to isolate the variable
4. Solution is checked through substitution