

Algebra 1: Unit 3 Problem Set A

ANSWER KEY

Name JOE. A. STUDENT

Date _____ Period _____

Simplify each expression by removing parentheses and combining like terms.

SHOW ALL STEPS!!

$$\begin{aligned} 1. \quad & \overset{\curvearrowright}{\overset{\curvearrowright}{4(x+9)}} - 10 && \text{distribute} \\ & 4x + 36 - 10 && \text{CLT} \\ & 4x + 26 \end{aligned}$$

$$\begin{aligned} 2. \quad & 4 + \overset{\curvearrowright}{\overset{\curvearrowright}{2(x-7)}} && \text{distribute} \\ & 4 + 2x - 14 && \text{CLT} \\ & 2x - 10 \end{aligned}$$

$$\begin{aligned} 3. \quad & 4 - \overset{\curvearrowright}{\overset{\curvearrowright}{2(x-7)}} && \text{distribute} \\ & 4 - 2x + 14 && \text{CLT} \\ & -2x + 18 \end{aligned}$$

$$\begin{aligned} 4. \quad & \overset{\curvearrowright}{\overset{\curvearrowright}{-4(x-9)}} - 10 + 2x - \overset{\curvearrowright}{\overset{\curvearrowright}{3(x+2)}} && \text{distribute} \\ & -4x + 36 - 10 + 2x - 3x - 6 && \text{CLT} \\ & -5x + 20 \end{aligned}$$

Solve for the indicated variable. Describe each step and check your solution.

$$\begin{aligned} 5. \quad & \frac{u}{15} = 7 \\ & (15) \left[\frac{u}{15} \right] = [7](15) && \text{mult both sides by 15} \\ & u = 105 \end{aligned}$$

$$\begin{aligned} 6. \quad & \frac{m}{-4} = 13 \\ & (-4) \left[\frac{m}{-4} \right] = [13](-4) && \text{mult both sides by -4} \\ & m = -52 \end{aligned}$$

7.

$$-\frac{4r}{5} = -8$$

$$(5)\left[-\frac{4r}{5}\right] = [-8](5) \quad \text{mult both sides by 5}$$

$$-4r = -40 \quad \text{divide both sides by -4}$$

$$r = 10$$

8.

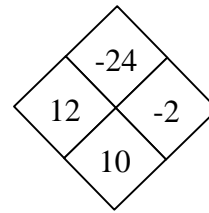
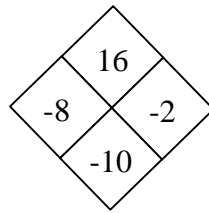
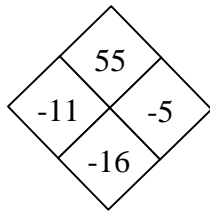
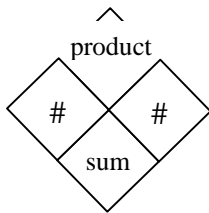
$$-50 = \frac{10n}{-6}$$

$$(-6)[-50] = \left[\frac{10n}{-6}\right](-6) \quad \text{mult both sides by -6}$$

$$\frac{300}{10} = \frac{10n}{10} \quad \text{divide both sides by 10}$$

$$30 = n$$

9. Copy and solve each of the following diamond problems:



In #10-18 solve for the indicated variable. Describe each step and check your solution.

10.

$$-2x - 5 = -11$$

Solution: $x = 3$ Possible first step: **Add 5 to both sides**

11.

$$-\frac{2}{5}x + 4 = 8$$

Solution: $x = -10$ Possible first step: **Subtract 4 from both sides**
or: **Mult. both sides by 5 (or -5) (Frac-Attack!)**

12. $2n - 5 = 8n + 7$

Solution: $n = -2$

Possible first step:
or:

Subtract 2n from both sides
Subtract 8n from both sides

13. $30 - 7z = 10z - 4$

Solution: $z = 2$

Possible first step: *Add 7z to both sides*

14. $6x = 4(x + 5)$

Solution: $x = 10$

Possible first step: *Distribute; then subtract 4x from both sides*

15. $-36 + 2w = -8w + w$

Solution: $w = 4$

Possible first step: *Combine Like Terms, then add 7w to both sides*

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$$-2\left(r - \frac{1}{2}\right) = -2$$

Distribute

$$-2r + 1 = -2$$

subtract 1 from both sides

$$-2r = -3$$

divide both sides by -2

$$r = \frac{-3}{-2}$$

re-write (simplify)

$$r = \frac{3}{2}$$

Check your solution!

Solution: $r = \frac{3}{2}$

Best first step: Distribute; then Add 7z to both sides

17. $4p - 10 = p + 3p - 2p$

Solution: $p = 5$

Possible first step: *Combine like terms (on the right side)*

18.

$$\frac{5n+1}{8} = \frac{1}{2}$$

Solution: $n = \frac{3}{5}$

Possible first step: ***Multiply both sides by 8 (FRAC-ATTACK!!)*** 