$$x + 3 = 2x - 5$$
$$-x \qquad -x$$
$$3 = x - 5$$
$$+5 \qquad +5$$
$$8 = x$$

$$-3x + 12 = 2x + 12$$
$$+3x \quad -12 \qquad 3x \quad -12$$
$$0 = 5x \qquad x = 0$$

$$3(x - 4) = 2(x + 6)$$
$$3x + -12 = 2x + 12$$
$$-2x + 12 \qquad -2x + 12$$
$$x = 24$$

Algebra 1 2.4

Solve equations with the variable on each side.
Solve equations with grouping symbols.

Quiz 2.3-2.4 Wed.

→ identity
→ no solution
→ all real numbers

Whiteboards

$2x + 5 = 13$
$-5 \quad -5$
$\frac{2x}{2} = \frac{8}{2}$
$x = 4$

$2(x + -3) = 18$
$2x + -6 = 18$
$+6 \quad +6$
$\frac{2x}{2} = \frac{24}{2}$
$x = 12$

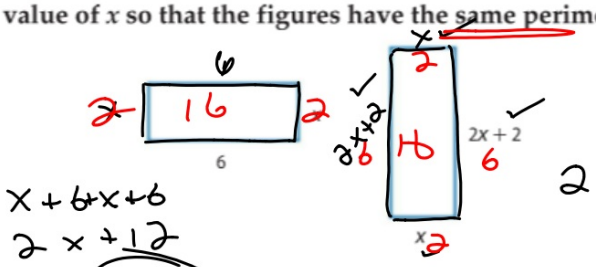
ConceptSummary Steps for Solving Equations

Step 1 Simplify the expressions on each side. Use the Distributive Property as needed.

Step 2 Use the Addition and/or Subtraction Properties of Equality to get the variables on one side and the numbers without variables on the other side. Simplify.

Step 3 Use the Multiplication or Division Property of Equality to solve.

4. Find the value of x so that the figures have the same perimeter.



$x+6+x+6$

$2x+12$

$2x+2+x+2x+2+x$

$6x+4$

F 1.5 G 2 H 3.2 J 4

$2x+12=6x+4$

$-2x \quad -2x$

$12=4x+4$

$-4 \quad -4$

$8=4x$

$\frac{8}{4}=\frac{4x}{4}$

$x=2$

Solve & check

10. $7c+12=-4c+78$

$+4c \quad +4c$

11. $2m-13=-8m+27$

$+8m \quad +8m$

12. $9x-4=2x+3$

13. $6+3t=8t-14$

(10) $11c+12=78$

$-12 \quad -12$

$11c=66$

$2m-13=-8m+27$

$-2m \quad -2m$

$-13=-10m+27$

$-27 \quad -27$

$-40=-10m$

$\frac{-40}{-10}=\frac{-10m}{-10}$

$m=4$

14. $\frac{b-4}{6} = \frac{b}{2}$

15. $\frac{5v-4}{10} = \frac{4}{5}$

16. $8 = 4(r+4)$

17. $6(n+5) = 66$

$6 \cdot \frac{B-4}{6} = \frac{B}{2} \cdot \frac{6}{1}$

$B-4 = \frac{6B}{2}$

$B-4 = 3B$

$-B \quad -B$

$-4 = 2B$

$\frac{-4}{2} = \frac{2B}{2}$ $B = -2$

$10 \cdot \frac{5v-4}{10} = \frac{4}{5} \cdot \frac{10}{1}$

$5v-4 = 8$

$+4 \quad +4$

$\frac{5v}{5} = \frac{12}{5}$ $v = 2.4$

18. $5(g + 8) - 7 = 103$

19. $12 - \frac{4}{5}(x + 15) = 4$

20. $3(3m - 2) = 2(3m + 3)$

21. $6(3a + 1) - 30 = 3(2a - 4)$

$3 = 5$

$2(x+6) = 2x-3$

$2x+12 = 2x-3$

$-2x \quad -2x$

$12 = -3$

NS

$5x+2 = 5(x+3)$

$5x+2 = 5x+15$

$-5x \quad -5x$

$2 = 15$

NS

$2(x+3) = 2x+6$

$2x+6 = 2x+6$

$-2x \quad -2x$

$6 = 6$

identity

$$2(x-3) = 3x + 5 - x$$

$$\begin{array}{r} 2x - 6 = 2x + 5 \\ -2x \qquad -2x \\ \hline -6 = 5 \end{array}$$

NS