Warm-up: Simplify each expression.

1. $7(2x + 1)$

$14x + 7$

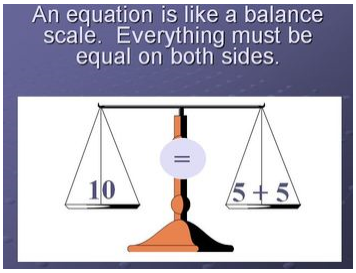
2. $8x - 2(x - 3)$

$8x - 2x + 6$

$6x + 6$

Oct 6-2:35 PM

Section 2.1 Solve One-Step Equat



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Addition Property of Equality	Subtraction Property of Equality
Adding the same number to each side of an equation produces an equivalent equation	Subtracting the same number to each side of an equation produces an equivalent equation
Example: $x - 5 = 6$ $x - 5 + 5 = 6 + 5$ $x = 11$	Example: $x + 5 = 6$ $x + 5 - 5 = 6 - 5$ $x = 1$

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Rules for solving one-step equations

1. You want to isolate the variable (meaning get the variable by itself)
2. You need to UNDUE the operation being done to the variable
3. Whatever you do to one side of the equation has to be done to the other side as well

Example 1: Solve each equation.

a. $y + 3 = 10$

$-3 \quad -3$

$y = 7$

$y = 7$

b. $t - 9 = 11$

$+9 \quad +9$

$t = 20$

$t = 20$

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Checkpoint: Solve each equation. Check your solution.

1. $a + 6 = 17$

$-6 \quad -6$

$a = 11$

2. $b - 17 = 12$

$+17 \quad +17$

$b = 29$

3. $-3 = x + 2$

$-2 \quad -2$

$-5 = x$

4. $y - 4 = -6$ $+4$

$+4$

$y = -2$

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Multiplication Property of Equality	Division Property of Equality
Multiplying each side of an equation by the same non-zero number produces an equivalent equation	Dividing each side of an equation by the same non-zero number produces an equivalent equation
Example: $\frac{x}{5} = 7$ $5 \cdot \frac{x}{5} = 7 \cdot 5$ $x = 35$	Example: $6 \cdot x = 30$ $\frac{6x}{6} = \frac{30}{6}$ $x = 5$

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Example 3: Solve each equation.

a. $8x = 56$

$\frac{8x}{8} = \frac{56}{8}$

$1x = 7$

$x = 7$

b. $\frac{a}{5} = 12$

$5 \cdot \frac{a}{5} = 12 \cdot 5$

$1a = 60$

$a = 60$

c. $\frac{3}{5}x = 6$

$\frac{5}{3} \cdot \frac{3}{5}x = 6 \cdot \frac{5}{1}$ $\frac{30}{3}$

$x = 10$

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Checkpoint: Solve each equation. Check your solution.

5. $3x = 39$

$x = 13$

6. $\frac{b}{4} = 13$

$4 \cdot \frac{b}{4} = 13 \cdot 4$

$b = 52$

7. $-24 = 4x$

$\frac{-24}{4} = \frac{4x}{4}$

$-6 = x$

8. $-m = 21$

$\frac{-m}{-1} = \frac{21}{-1}$

$m = -21$

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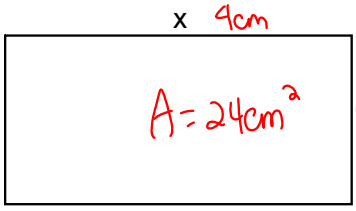
Example 3: A rectangle has an area of 24 cm². Write and solve an equation to find the value of x.



$A = LW$

$\frac{24}{6} = \frac{x \cdot 6}{6}$

$4 = x$

4cm

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Checkpoint:

9. In the 2004 Summer Olympics, Inge de Bruijn won the women's 50-meter freestyle. Her winning time was 24.58 seconds. Find her average swimming speed to the nearest hundredth of a meter per second. (*Hint:* Use $d = rt$)

$d = rt$

$\frac{50}{24.58} = \frac{r \cdot 24.58}{24.58}$

$2.03 = r$

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