

9/11

Algebra - Downing

Warm-up

1) Solve + graph $-4 < -2(x+5) \leq 12$

$$\begin{array}{r} -4 < -2x - 10 \leq 12 \\ +10 \quad +10 \quad +10 \end{array}$$

$$\frac{6}{-2} < \frac{-2x}{-2} \leq \frac{22}{-2}$$

$$-3 > x \geq -11$$

$$\boxed{-11 \leq x < -3}$$

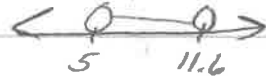


- 2) A company charges between \$100 and \$200 for a visit to your house. They charge a \$25 flat fee and \$15 per hour. How many hours will they work at your house?

$$\begin{array}{r} 100 < 25 + 15x < 200 \\ -25 \quad -25 \quad -25 \end{array}$$

$$\frac{75}{15} < \frac{15x}{15} < \frac{175}{15}$$

$$\boxed{5 < x < 11.6 \text{ hours}}$$

Algebraic Proof

* Properties of Equality

- Commutative: $3x + 4 = 4 + 3x$ (the order is flipped)

- Associative: $2 + (3 + 4) = (2 + 3) + 4$ (order of operations changes)

- Distributive: $4(x - 2) = 4x - 4(2) = 4x - 8$ (multiply into the parenthesis)

- Addition POE

- Subtraction POE

- Multiplication POE

- Division POE

What you do to
one side of your equation,
you must do to the other!

statements	Reasons
$4(x+3) = 52$	Given
$4x + 12 = 52$	Distributive Property
$\begin{array}{r} 4x + 12 = 52 \\ -12 \quad -12 \\ \hline \end{array}$	Subtraction POE
$\begin{array}{r} 4x = 40 \\ \hline 4 \quad 4 \end{array}$	Simplify Division POE
$x = 10$	Simplify

Statements	Reasons
$12\left(\frac{2}{3} + x\right) = \left(9 - \frac{x}{4}\right)12$	Given
$\begin{array}{r} 8 + 12x = 108 - 3x \\ +3x \quad +3x \end{array}$	Multiplication POE Addition POE
$\begin{array}{r} 8 + 15x = 108 \\ -8 \quad -8 \end{array}$	Simplify Subtraction POE
$\begin{array}{r} 15x = 100 \\ \hline 15 \quad 15 \end{array}$	Simplify Division POE
$x = \frac{20}{3}$	Simplify

HW - Review for PC #2 - Unit 1

#2, 3, 6, 7, 8, 10, 11, 12, 13, 15, 17

* PC Tomorrow