What's Going On?

Checking In

Minds on Isolating x

Action! Rearranging Formulas

Consolidation Ask the Expert

Learning Goal - I will be able to rearrange formulas!

Checking In

FFM

$$\frac{3}{2}(2x-5) = -\frac{3}{4}(2-3x)$$

1. Rewrite it so it doesn't look so terrifying.

(The Maddy Method)

$$\frac{3(2x-5)}{2} = \frac{-3(2-3x)}{4}$$

2. Clear the fraction on the left side by multiplying both sides by 2.

$$\cancel{2}\times\frac{3(2x-5)}{\cancel{2}} = 2\times\frac{-3(2-3x)}{4}$$

$$3(2x-5) = \frac{-6(2-3x)}{4}$$

3. Clear the fraction on the right side by multiplying both sides by 4.

$$4\times 3(2x-5) = \cancel{4}\times\frac{-6(2-3x)}{\cancel{4}}$$

$$12(2x-5) = -6(2-3x)$$

Checking In

FFM

$12(2x-5) = -6(2-3x)$

4. Use the distributive property to expand on both sides.

$12(2x-5) = -6(2-3x)$

$24x - 60 = -12 + 18x$

5. Bring all of the variable terms to the left using opposite operations.

$24x - 60 = -12 + 18x$

$-18x \qquad -18x$

$6x - 60 = -12$

6. Bring all of the constant terms to the right using opposite operations.

$6x - 60 = -12$

$+60 \qquad +60$

$6x = 48$

7. Isolate the variable using opposite operations.

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

$x = 8$

Checking In

Next Test

Our next unit test will be on

Minds on

Isolating x

Isolate x, but DO NOT simplify / evaluate

$$\sqrt{x^2} = \sqrt{25}$$

$$x = \sqrt{25}$$

Minds on

Isolating x

Isolate x, but DO NOT simplify / evaluate

$$x + 7 = 10$$

$-7 \quad -7$

$x = 10 - 7$

Minds on

Isolating x

Isolate x, but DO NOT simplify / evaluate

$$\frac{5x}{5} = \frac{15}{5}$$

$$x = \frac{15}{5}$$

Minds on

Isolating x

Isolate x, but DO NOT simplify / evaluate

$$3x - 2 = 7$$

$$+2 \quad +2$$

$$\frac{3x}{3} = \frac{7+2}{3}$$

$$x = \frac{7+2}{3}$$

Minds on

Isolating x

Isolate x, but DO NOT simplify / evaluate

$$5 \cdot \frac{x}{5} = 4 \cdot 5$$

$x = 4 \cdot 5$

$x = 4 \times 5$

$x = (4)(5)$

Action!

Rearranging Formulas

Rearranging formulas is NO DIFFERENT than solving equations!

The only reason they seem different is because we can't simplify at each step.

Action!

Rearranging Formulas

Isolate r.

$\sqrt{x^2} = \sqrt{25}$

$x = \sqrt{25}$

$\sqrt{A} = \sqrt{r^2}$

$\sqrt{A} = r$

$r = \sqrt{A}$

Action!

Rearranging Formulas

$x + 7 = 10$

$-7 \quad -7$

$x = 10 - 7$

Isolate a.

$d = a + b$

$-b \quad -b$

$d - b = a$

$a = d - b$

Action!

Rearranging Formulas

$5x = 15$

Isolate s.

$P = 4s$

$\frac{P}{4} \quad \frac{4s}{4}$

$s = \frac{P}{4}$

$s = \frac{1}{4}P$

Action!

Rearranging Formulas

Isolate d.

$$\frac{x}{5} = 4$$

$$t \cdot s = \frac{d}{t} \cdot t$$

$$ts = d$$

$$d = ts$$

$$d = st$$

$$d = (s)(t)$$

speed = km/h

$$\text{speed} = \frac{\text{km}}{\text{h}} \quad \frac{\text{distance}}{\text{time}}$$

Action!

Rearranging Formulas

$3x - 2 = 10$

$+2 \quad +2$

$\frac{3x}{3} = \frac{10+2}{3}$

$x = \frac{10+2}{3}$

Isolate m.

$y = mx + b$

$-b \quad -b$

$\frac{mx}{x} = \frac{y-b}{x}$

$m = \frac{y-b}{x}$

Action!

Rearranging Formulas

Isolate t.

$$t \times s = \frac{d}{t} \times t$$

*IF the variable we want to solve for is in the denominator, **first** get it outta there!

$$\frac{t \times s}{s} = \frac{d}{s}$$

$$t = \frac{d}{s}$$

$\frac{km}{h}$ $\frac{\text{distance}}{\text{speed}}$

$$km \times \frac{h}{km}$$

Consolidation

Isolate w. $P = 2l + 2w$	Isolate r. $A = \pi r^2$
Isolate b. $A = \frac{b \times h}{2}$	Isolate r. $C = 2\pi r$

Consolidation

Practice it!