

(10)

Solving Multi-Step Equations

Steps:

- ① Do I have to distribute?
- ② Do I need to clean up? Combine Like Terms
- ③ Do I have variables on both sides?
If so, pick on the "little" guy.
- ④ Isolate the variable then Add/sub
- ⑤ Mult/Divide

Ex) $2 + 5(x+3) - 3(x+4) = -x + 2(2x+4)$

① Distribute? ✓

② Clean up? ✓

③ Variables on both sides? ✓

④ Isolate x + or - ✓

⑤ Mult/Div. ✓

Make the little guy

$$2 + 5x + 15 - 3x + 12 = -x + 4x + 8$$
$$2x + 29 = 3x + 8$$
$$29 = 3x + 8$$
$$21 = 3x$$
$$\frac{21}{3} = \frac{3x}{3}$$
$$x = 7$$

Ex) $8x - 21 - 5x = -15$

$3x - 21 = -15$

$3x = 6$

$\frac{3x}{3} = \frac{6}{3}$

$x = 2$

- ① Distribute? X No
- ② Clean up? ✓
- ③ Variables on both sides? X No
- ④ Isolate x + or - ✓
- ⑤ Mult/Div. ✓

understood
 ex) $10y - (4y + 8) = -20$ ① Distribute? ✓

$10y = 4y - 8 = -20$ ② Clean up? ✓

$6y - 8 = -20$ ③ Variables on both sides? X No

④ Isolate + or - ✓

⑤ Mult/Div ✓

$6y = -12$
 $\frac{6y}{6} = \frac{-12}{6}$

$y = -2$

ex) $x + 2(2x + 3) - 1 = \frac{1}{2}(4x + 28)$ ① Distribute? ✓

$x + 4x + 6 - 1 = 2x + 14$ ② Clean up? ✓

$5x + 5 = 2x + 14$ ③ Variables on both sides? ✓

$3x + 5 = 14$ ④ Isolate + Add/Sub ✓

⑤ Mult/Div. ✓

$\frac{3x}{3} = \frac{9}{3}$

$x = 3$

$\frac{x}{3} = \frac{15}{3}$

$x = 15$

$\frac{d}{5} = \frac{30}{5}$
 $d = 30$