Key

Special Cases

Warm UP → *One more new idea!*

Two problems:

a. $3-6(x-5)=5x$

$3-6x+30=5x$

$-6x+33=5x$

$33=11x$

$\boxed{3=x}$

b. $3x+8-5x=10-5x$

$-2x+8=10-5x$

$3x=2$

$\boxed{x=\frac{2}{3}}$

Two more.....hmmmm:

a. $5(z-8)=-40+5z$

$\cancel{5z}-\cancel{40}=-\cancel{40}+\cancel{5z}$

$0=0$

TRUE

b. $2x+7-4x=5-\frac{1}{2}(4x-8)$

$-2x+7=5-2x+4$

$-\cancel{2x}+7=9-\cancel{2x}$

$7\neq 9$ FALSE

(IMS) infinitely many solutions

SOOOOO..... If we end up with a true statement then our answer is all real #s $\mathbb{R}$

And if we end up with a false statement then we have no real solutions

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Two more.....hmmmm:

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SOOOOO..... If we end up with a _____ statement then our answer is _____ _____ _____

And if we end up with a _____ _____ then we have _____ _____ _____

A few practice problems:

1) $2(k - 1) = -\frac{1}{2}(-4k + 4)$

$2k - 2 = 2k - 2$

$0 = 0$

$\boxed{\text{all real \#s}}$

2) $5(1 + 4s) = 2(3 + 10s)$

$5 + \cancel{20s} = 6 + \cancel{20s}$

$5 \neq 6$

$\boxed{\text{no solution}}$

3) $\frac{x}{2} - 5 = -7 + 2$

$\frac{x}{2} - 5 = -5$

$\frac{x}{2} = 0$

$\boxed{x = 0}$

4) $10 - 2(x + 4) = 8 - 4x$

$10 - 2x - 8 = 8 - 4x$

$-2x + 2 = 8 - 4x$

$2x = 6$

$\boxed{x = 3}$

A few practice problems:

1) $2(k - 1) = -\frac{1}{2}(-4k + 4)$

2) $5(1 + 4s) = 2(3 + 10s)$

3) $\frac{x}{2} - 5 = -7 + 2$

4) $10 - 2(x + 4) = 8 - 4x$