

①

Lesson 11/8/23Zero Factor Principle: For numbers a, b if

$$ab = 0 \text{ then } a=0 \text{ or } b=0$$

Similarly if

$$(x-c)(x-d) = 0 \text{ then } x-c=0 \text{ or } x-d=0$$

$$\text{So } x=c \text{ or } x=d.$$

Ex: Solve: $17(x+7)(x+3) = 0$

17 = 0 can't happen

$$x+7 = 0 \Rightarrow x = -7$$

$$x+3 = 0 \Rightarrow x = -3$$

Solutions: $x = -7$ or $x = -3$.

New let combine this w/ what we ^{learned} ~~learned~~ on Monday:

Ex: Solve $9s^2 - 18s = 0$

① Factor

$$9s(s-2) = 0$$

$$9s = 0 \text{ or } s-2 = 0$$

$$s = 0 \text{ or } s = 2$$

Solve $8x^2 + 2x = 15$

① Get everything on same side

$8x^2 + 2x - 15 = 0$

② Factor by ac-method

$a \cdot c = -120$ (~~or 120 if you want~~)

check
factor
Sign
on
other
factor.

-1 · 120	1 + 120 = 121
-2 · 60	2 + 60 = 62
-3 · 40	3 + 40 = 43
-4 · 30	4 + 30 = 34
-5 · 24	5 + 24 = 29
-6 · 20	
-8 · 15	
10 · (-12)	10 + (-12) = -2
12 · (-10)	12 + (-10) = 2

$8x^2 + 2x - 15$
 $= 8x^2 + 12x - 10x - 15$
 $= 4x(x+3) - 5(x+3)$
 $= (4x-5)(x+3) = 0$
 So $4x-5=0$ or $x+3=0$
 $\Rightarrow x = \frac{5}{4}$ or $x = -3$