

Warm-up

Factor out GCF

$$\textcircled{1} \quad 8r + 12$$

$$\text{GCF: } 4$$

$$4(2r + 3)$$

$$\textcircled{2} \quad 3x^3 - x^2$$

$$\text{GCF: } x^2$$

$$x^2(3x - 1)$$

$$\textcircled{3} \quad 9x^4y^3 + 12x^2y^3 - 3y^3$$

$$\text{GCF: } 3$$

$$3(3x^4y^3 + 4x^2y^3 - 1)$$

$$\frac{3}{3} = 1 \quad \frac{8}{8} = 1 \quad \frac{-16}{-16} = 1$$

$$\frac{x^2}{x^2} = 1$$

9.4b Solving Polynomials

$$x \cdot 5 = 0, x = ?$$

$$x = 0$$

$$-16 \cdot y = 0, y = ?$$

$$y = 0$$

If $A \cdot B = 0$, then

either $A = 0$ or $B = 0$
 (factor) (factor)

* Called Zero Product Property

* Must equal zero

* Each factor equals zero

Solving then

$$(x+4)(x-8) = 0$$

Factor
Set = 0

Factor
Set = 0

So...

$$x+4=0$$

-4 -4

$$x-8=0$$

+8 +8

∴ Solve for x

$$x = -4$$

$$x = 8$$

Check

$$x = -4$$

$$(-4+4)(-4-8) = 0$$

$$0 \cdot -12 = 0$$

$$x = 8$$

$$(8+4)(8-8) = 0$$

$$12 \cdot 0 = 0$$

Use factoring : today

$$2x^2 + 8x = 0 \quad \leftarrow \text{Ignore the } = 0$$

$\times 2x$ $\times 2x$

GCF: $2x$

$$2x(x+4) = 0 \quad \leftarrow \text{Think } 2x \text{ as } (2x)$$

$$(2x)(x+4) = 0 \quad \leftarrow \text{Set each} = 0$$

OR

↓ ↓

$$\frac{2x}{2} = \frac{0}{2} \quad \quad \quad \frac{x+4}{-4} = \frac{0}{-4}$$

$$x = 0 \quad \text{or} \quad x = -4$$

Homework

$$(9) (m-3)(4m+12)=0 \quad (11) (3n+11)(n+1)=0$$

$$(13) (2y+5)(7y-5)=0 \quad (15) (8z-6)(12z+14)=0$$

$$(30) 2x^2 + 16x = 0$$

GCF:

$$(32) 32y^2 - 2y = 0$$

GCF:

$$^+ (34) 6h^2 = 3h$$

$$^+ (36) -42z^2 = 14z$$