

Math 1

* Quiz
Wednesday *

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Ex 1:

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

$x = 5$ or -5

$x = \pm 5$

b. $x^2 - 4 = 32$
 $\quad \quad \quad +4 \quad +4$

$\sqrt{x^2} = \sqrt{36}$

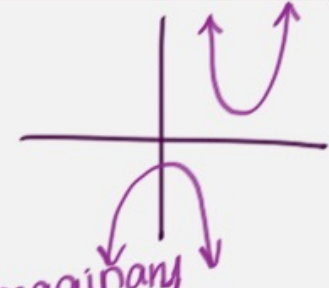
$x = \pm 6$

c. $x^2 + 4 = 2$
 $\quad \quad \quad -4 \quad -4$

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

$x = \sqrt{-2} \rightarrow$ imaginary

No Solution
 \hookrightarrow no x-int.



Ex 2:

a. $\frac{3x^2}{3} = \frac{48}{3}$

$\sqrt{x^2} = \sqrt{16}$

$x = \pm 4$

$x = 4$ or -4

b. $5x^2 - 7 = 118$
 $\quad \quad \quad +7 \quad +7$

$\frac{5x^2}{5} = \frac{125}{5}$

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

$x = \pm 5$

c. $6x^2 + 4 = 2$
 $\quad \quad \quad -4 \quad -4$

$\frac{6x^2}{6} = \frac{-2}{6}$

$\sqrt{x^2} = \sqrt{-\frac{2}{3}}$

No Solution

$\frac{2x^2}{-2} = \frac{-22}{-2}$
 $x^2 = 11$

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Practice:

1. $x^2 + 9 = 58$
 $\quad -9 \quad -9$

$$\sqrt{x^2} = \sqrt{49}$$

$$x = \pm 7$$

2. $\frac{2x^2}{2} = \frac{200}{2}$

$$\sqrt{x^2} = \sqrt{100}$$

$$x = \pm 10$$

3. $8x^2 + 10 = -22$
 $\quad -10 \quad -10$

$$\frac{8x^2}{8} = -\frac{32}{8}$$

$$\sqrt{x^2} = \sqrt{-4}$$

$$x = \sqrt{-4} \rightarrow \text{imaginary}$$

$$\boxed{\text{No Solution}}$$

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Zero Product Property

$$(a)(b)=0, a=0 \text{ or } b=0$$

$$\downarrow \quad \downarrow$$

$$=0 \quad =0$$

Factors/Dimensions

Ex 1:

a. $(x+5)(x-7)=0$

$$\downarrow \quad \downarrow$$

$$=0 \quad =0$$

$$x+5=0$$

$$\begin{array}{r} -5 \\ -5 \end{array}$$

$$\boxed{x=-5}$$

$$x-7=0$$

$$\begin{array}{r} +7 \\ +7 \end{array}$$

$$\boxed{x=7}$$

b. $(2x-16)(4x+24)=0$

$$\downarrow \quad \downarrow$$

$$=0 \quad =0$$

$$2x-16=0$$

$$\begin{array}{r} +16 \\ +16 \end{array}$$

$$\frac{2x}{2} = \frac{16}{2}$$

$$\boxed{x=8}$$

$$4x+24=0$$

$$\begin{array}{r} -24 \\ -24 \end{array}$$

$$\frac{4x}{4} = \frac{-24}{4}$$

$$\boxed{x=-6}$$

c. $x(x-0)(3x+18)=0$

$$\downarrow \quad \downarrow$$

$$=0 \quad =0$$

$$\boxed{x=0}$$

$$3x+18=0$$

$$\begin{array}{r} -18 \\ -18 \end{array}$$

$$\frac{3x}{3} = \frac{-18}{3}$$

$$\boxed{x=-6}$$

EX 2: *GCF*

a. $x^2+7x=0$

$$x(x+7)=0$$

$$\downarrow \quad \downarrow$$

$$=0 \quad =0$$

$$\boxed{x=0}$$

$$x+7=0$$

$$\begin{array}{r} -7 \\ -7 \end{array}$$

$$\boxed{x=-7}$$

b. $-x^2-8x=0$

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

$$\downarrow \quad \downarrow$$

$$=0 \quad =0$$

$$-x=0$$

$$\boxed{x=0}$$

$$x+8=0$$

$$\begin{array}{r} -8 \\ -8 \end{array}$$

$$\boxed{x=-8}$$

c. $-x^2+12x=0$

$$-x(x-12)=0$$

$$-x=0$$

$$\boxed{x=0}$$

$$x-12=0$$

$$\begin{array}{r} +12 \\ +12 \end{array}$$

$$\boxed{x=12}$$

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Practice Problems:

1. $(x-11)(2x+16)=0$

$$\begin{array}{r} x-11=0 \\ +11 \quad +11 \\ \hline x=11 \end{array}$$

$$\begin{array}{r} 2x+16=0 \\ -16 \quad -16 \\ \hline 2x=-16 \\ \frac{2x}{2} = \frac{-16}{2} \\ x=-8 \end{array}$$

2. $x^2+9x=0$

$$x(x+9)=0$$

$$x=0$$

$$\begin{array}{r} x+9=0 \\ -9 \quad -9 \\ \hline x=-9 \end{array}$$

3. $6x^2+24x=0$

$$6x(x+4)=0$$

$$\frac{6x}{6} = \frac{0}{6}$$

$$x=0$$

$$\begin{array}{r} x+4=0 \\ -4 \quad -4 \\ \hline x=-4 \end{array}$$

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