

5.5
HW
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$$(x + 7)^2 = \frac{49}{16}$$

$$x + 7 = \pm \frac{7}{4}$$

$$x = -7 \pm \frac{7}{4}$$

$$x = -7 + \frac{7}{4} = -5\frac{1}{4}$$

$$x = -7 - \frac{7}{4} = -7\frac{7}{4}$$

$$-8\frac{3}{4}$$

$$\frac{2 \pm \sqrt{5}}{3 \pm 2}$$

$$3 \pm \frac{4}{9}$$

$$3\frac{4}{9}$$

$$3 - \frac{4}{9} = 2\frac{5}{9}$$

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$$3x^2 + 4x - 6 = 0$$

$$\begin{aligned} -x &= -18 \\ -+ &= 4 \end{aligned}$$

$$(x^2 + 3x + 2) = y$$

Factorial Form $\rightarrow (x+1)(x+2) = y$

$$x+1=0 \quad x+2=0$$

Zeros \Rightarrow $x = -1 \quad x = -2$

roots \nearrow
 x-intercepts \nearrow
 solutions \nearrow

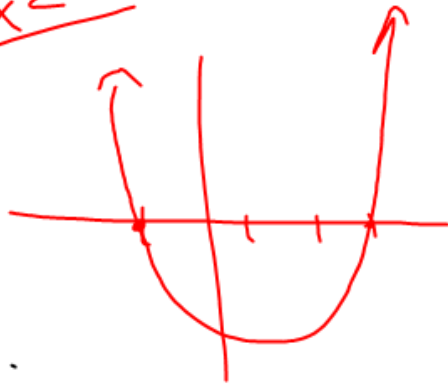
Write the Equation
from the roots

$$x = 3 \quad x = -1$$

$$y = (x - 3)(x + 1)$$

$$y = x^2 - 2x - 3$$

ex 2



$$(x + 1)(x - 3)$$

5.6 Complex Numbers



Imaginary Numbers!!

Since we can not take the square root of a negative number, the solution i was created.

$$i = \sqrt{-1}$$

$$i^2 = -1$$

For any positive real number a , $\sqrt{-a} = i\sqrt{a}$

$$\textcircled{1} \sqrt{-2}$$

$$\sqrt{-1 \cdot 2}$$

$$\sqrt{-1} \cdot \sqrt{2}$$

$$i\sqrt{2}$$

$$\textcircled{2} \sqrt{-8}$$

$$\sqrt{-1 \cdot 8}$$

$$2i\sqrt{2}$$

$$\rightarrow \sqrt{-1 \cdot 4 \cdot 2}$$

$$\textcircled{3} \sqrt{-36}$$

$$6i$$



5.6 complex numbers - SMART Notebook

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Complex Numbers

A complex number can be written in the form $a + bi$, where a and b are real numbers, including 0.

a $+ bi$
 ↑ ↑
 Real Imaginary
 Part Part

① Simplifying Imaginary Numbers

① $\sqrt{-9} + 6 =$

$3i + 6$

$6 + 3i$

② $\sqrt{-18} + 7$

$7 + 3i\sqrt{2}$

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5.6 complex numbers - SMART Notebook

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Absolute Value of a Complex Number

$$|a + bi| = \sqrt{a^2 + b^2}$$

① $|5i|$ ② $|3 - 4i|$

$$\sqrt{0^2 + 5^2}$$

⑤

$3 - 4i$

$$\sqrt{3^2 + (-4)^2}$$

$$\sqrt{9 + 16}$$

$$\sqrt{25}$$

⑤

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