

A company makes and sells syringes. The following equation models their Profit as a function of the # of syringes made per hour:

$$P(s) = -0.45s^2 + 360s - 51,500$$

1. Find the company's maximum Profit.

$$-0.45(400)^2 + 360(400) - 51,500 = \$29,500$$

Answer this question second
by replacing s with 400.

2. Find the number of syringes that should be made per hour in order to make this maximize Profit.

$$s = \frac{-b}{2a} = \frac{-360}{2(-0.45)} = 400 \text{ syringes}$$

Answer this question
first by finding the
Line of Symmetry.

A company makes and sells syringes. The following equation models their Profit as a function of the # of syringes made per hour:

$$P(s) = -0.45s^2 + 360s - 51,500$$

3. How many syringes should they make per hour in order to break-even?

$$0 = -0.45s^2 + 360s - 51,500 \quad P = 0$$

$$b^2 - 4ac = 36,200$$

$$s = \frac{-360 \pm \sqrt{36,200}}{-0.9} \quad s = 187, 614$$

Making either 187 or 614 syringes
per hour will allow the company to
break even.

Hwk #14

Sec 5-8

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Due
Tomorrow

Problems 8, 9, 21, 22, 31-33, 57-59

Find all Real solutions.

$$2x^2 + 18 = 12$$

$$-18 \quad -18$$

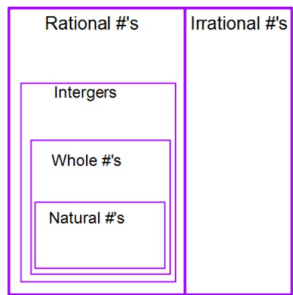
$$\frac{2x^2}{2} = \frac{-6}{2}$$

$$\sqrt{x^2} = \sqrt{-3} \rightarrow \text{NO Real Sol}$$

Sec 5-6

Complex Numbers

Real Numbers



Imaginary Numbers

Ex:

$$7i$$

$$2 + 5i$$

Imaginary Numbers:

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

i is called the imaginary unit.

Simplify each.

1. $\sqrt{24}$

$$= \sqrt{4 \cdot 6}$$
$$= \sqrt{4} \cdot \sqrt{6}$$
$$= 2\sqrt{6}$$

2. $\sqrt{-24}$

$$= \sqrt{-1 \cdot 4 \cdot 6}$$
$$= \sqrt{-1} \cdot \sqrt{4} \cdot \sqrt{6}$$
$$= 2i\sqrt{6}$$