

Review Day Warm-up

$$x, x+1, x+2$$

1) I am thinking of three consecutive integers. The product of the 2nd and 3rd integers is 56.

Find the 1st integer.

$$(x+1)(x+2) = 56$$

$$x^2 + 3x + 2 = 56$$

$$(-9, -8, -7) \text{ and } (6, 7, 8)$$

2) Use your calculator to find ONE root. You must show your work and find the other two roots

$$x^3 + 2x^2 - 14x - 40 = 0$$

$$\begin{array}{r} 4) \quad 1 \quad 2 \quad -14 \quad -40 \\ \quad \downarrow 4 \quad 24 \quad 40 \\ \hline \quad 1 \quad 6 \quad 10 \quad 0 \end{array}$$

$$x^2 + 6x + 10 = 0$$

$$x = \frac{-6 \pm \sqrt{36 - 4(1)(10)}}{2} \Rightarrow x = \frac{-6 \pm 2i}{2}$$

$$x = 4$$

$$x = -3 \pm i$$

3) Find the standard form equation for a polynomial whose roots are

$2 - 5i$ and -3 and $2 + 5i$

$$(x - 2 + 5i)(x - 2 - 5i)$$

$$x^2 - 2x - 5i(x - 2) + 10i + 5i(x - 2) - 25i^2$$

$$(x^2 - 4x + 29)(x + 3)$$

$$x^3 + 3x^2 - 4x^2 - 12x + 29x - 87$$

$$x^3 - x^2 + 17x - 87$$