

Bellwork Friday 11/17

Factor the following polynomial completely

$$x^3 - 6x^2 + 11x - 6$$

Factors of 6: $\pm 1, \pm 2, \pm 3, \pm 6 \rightarrow \pm 1, \pm 2, \pm 3, \pm 6$
Factors of 1: ± 1

$$\begin{aligned} (-1)^3 - 6(-1)^2 + 11(-1) - 6 \\ -1 - 6 - 11 - 6 \end{aligned}$$

$$\begin{aligned} (1)^3 - 6(1)^2 + 11(1) - 6 \\ 1 - 6 + 11 - 6 \\ 12 - 12 = 0 \end{aligned}$$

$$\begin{array}{r|rrrrr} 1 & 1 & -6 & 11 & -6 & \\ + & \downarrow & & 1 & -5 & 6 \\ \hline & 1 & -5 & 6 & 0 & \end{array} \quad (x^2 - 5x + 6)(x - 1)$$

$$\begin{array}{c} 6 \\ -2 \times -3 \\ -5 \end{array}$$

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

Factored form.