Office hours - Thurs, Nov 4

## Parabola Vertices - GS, #3

$$y = 5x^2 - 30x + 42$$

**Step 1:** $y - 42 = 5x^2 - 30x$

**Step 2:** Divide both sides by $a = 5$:

$$\frac{y-42}{5} = x^2 - 6x$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{-6}{2}\right)^2 = (-3)^2 = 9$$

**Step 3/4:**

$$\frac{y}{5} - \frac{42}{5} + 9 = x^2 - 6x + 9$$

$$-\frac{42}{5} + \frac{45}{5} = \frac{3}{5}$$

$$\frac{y}{5} + \frac{3}{5} = (x-3)^2$$

$$5 \cdot \frac{y}{5} = \left[(x-3)^2 - \frac{3}{5}\right] \cdot 5 \Rightarrow$$

$$y = 5(x-3)^2 - 3$$