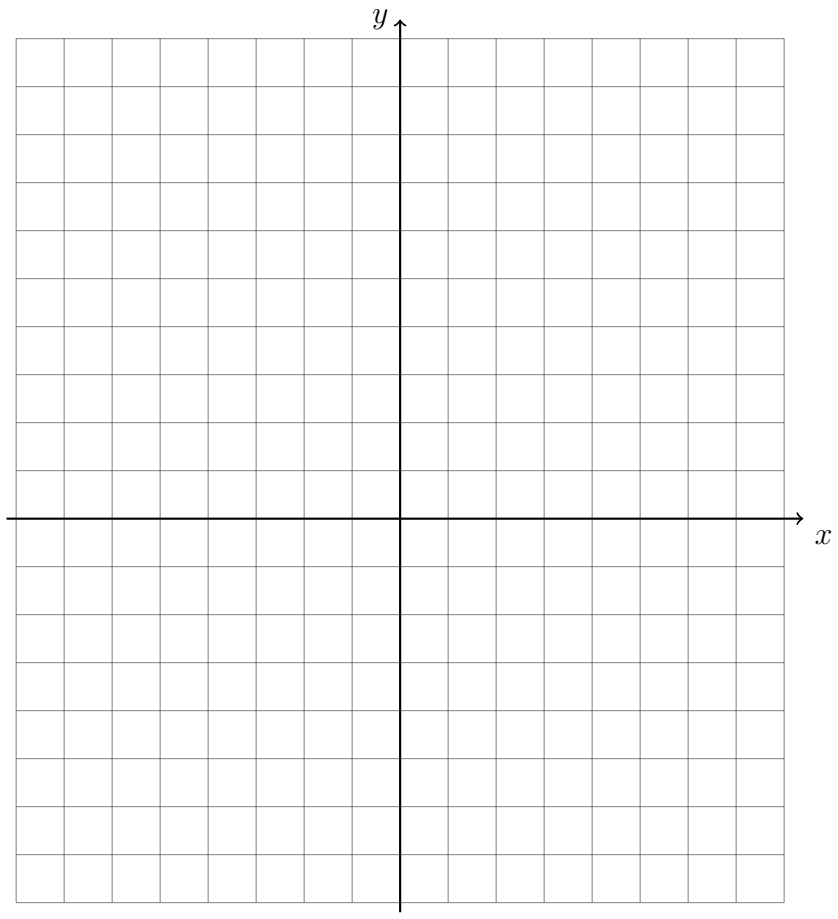
Homework: Completing the square

1. Complete the t-chart for $x = 0, 1, 2, 3, 4, 5, 6$, then plot the points on the grid below.

$$y = x^2 - 6x + 5$$

Draw a smooth curve through the points, and label the parabola with its equation.

x	y



(a) Mark the $x-$ and $y-$intercepts with their values.

(b) Mark the vertex on the graph as an ordered pair.

(c) Write down the equation of the parabola in vertex form.

(d) Explain how this equation could have been derived by completing the square.

2. Complete the square by adding a constant, then factor as a binomial squared.
   (a) Example: $x^2 + 6x \rightarrow \qquad x^2 + 6x + 9 = (x+3)^2$
   (b) $x^2 + 4x \rightarrow$
   (c) $x^2 + 14x \rightarrow$

3. Simplify each radical
   (a) Example: $\sqrt{12} \rightarrow \qquad = 2\sqrt{3}$
   (b) $\sqrt{20}$
   (c) $\sqrt{18}$
   (d) $\sqrt{75}$

4. Graph and label the two equations. Mark their intersection as an ordered pair.

   $y = 2x - 7$ $\qquad\qquad$ $2x + 4y = 12$

   Are the lines parallel, perpendicular, or neither? Justify your answer.