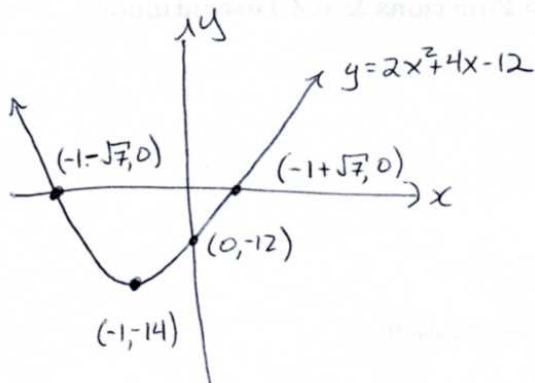What is important in Unit 13 are really three things:

- Knowing and using the quadratic formula.
- Transforming equations into quadratic equations so you can solve them using quadratic formula.
- Sketching quadratics.

You should understand completing the square, but at this point you can use the quadratic formula instead of completing the square.
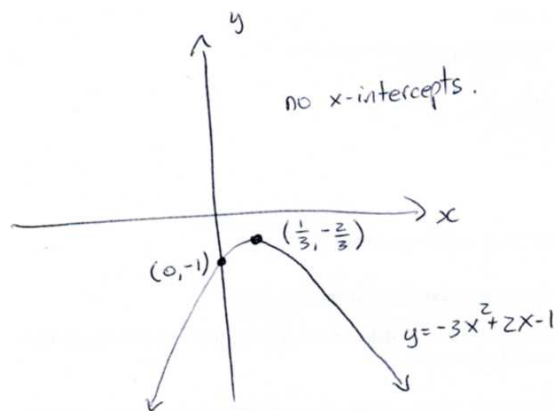
1. Use the Pythagorean theorem to find the length of the hypotenuse of a right triangle when the other two sides have lengths of 3cm and 5cm.

2. Determine the vertex and x-intercepts of $p(x) = 2x^2 + 2x - 4$.

3. Sketch the parabola $y = 2x^2 + 4x - 12$. Label the vertex, y-intercept, and any x-intercepts on your sketch.

4. Sketch the parabola $y = -3x^2 + 2x - 1$. Label the vertex, y-intercept, and any x-intercepts on your sketch.

5. Solve $x^4 - 2x^2 - 8 = 0$ for x. Include complex valued solutions in your answer.

6. Solve for y if $\dfrac{1}{4} + \dfrac{6}{y+2} = \dfrac{6}{y}$.

Solutions

1. $\sqrt{34}$cm

2. Vertex: $\left(-\dfrac{1}{2}, -\dfrac{9}{2}\right)$. x-intercepts: $x = 1$ and $x = -2$.

3.

4.

5. $x = \pm 2$ and $x = \pm i\sqrt{2}$.

6. $y = 6$ and $y = -8$.