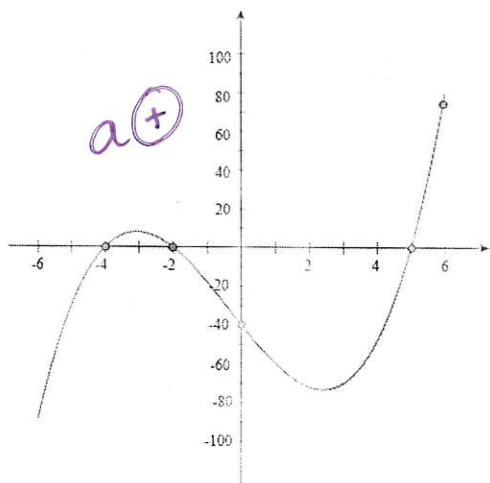


Spiral Review #2.2

Key

1. Determine a possible equation for the function shown below.

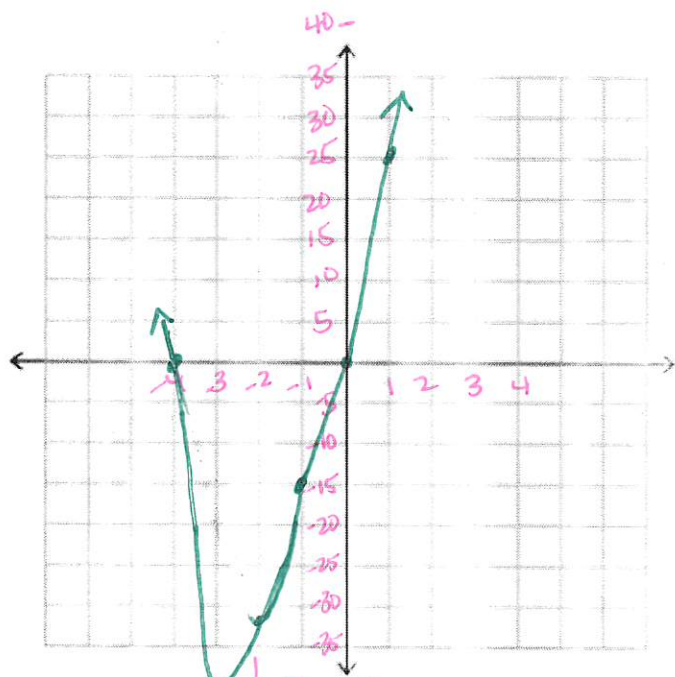


$$x = -4 \quad x = -2 \quad x = 5$$

$$y = (x+4)(x+2)(x-5)$$

2. Solve algebraically for all real and imaginary values of x in simplest form. Sketch the function below showing all intercepts.

$$x^4 + 4x^3 + 4x^2 + 16x = 0$$



x	y
-4	0
-3	-39
-2	-32
-1	-15
0	0
1	25

$$x^3(x+4) + 4x(x+4) = 0$$

$$(x^3 + 4x)(x+4) = 0$$

$$x(x^2 + 4)(x+4) = 0$$

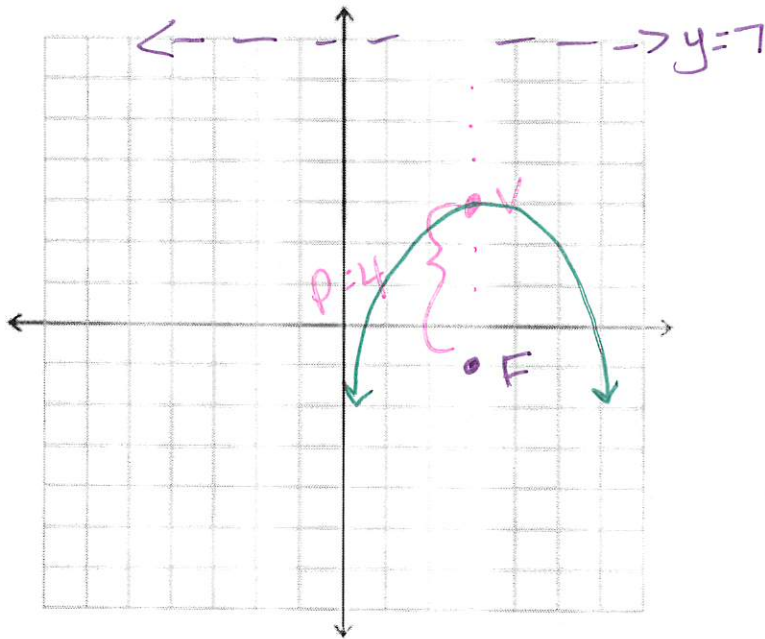
$$x = 0 \quad x^2 + 4 = 0 \quad x + 4 = 0$$

$$x^2 = -4 \quad x = -4$$

$$x = \pm 2i$$

$$\{0, \pm 2i, -4\}$$

3. Given a directrix of $y = 7$ and a focus of $(3, -1)$, write the equation of the parabola in **standard form or vertex form**.



Vertex $(3, 3)$

$$p = 4$$

$a \ominus$

$$y = -\frac{1}{4(4)}(x-3)^2 + 3$$

$$y = -\frac{1}{16}(x-3)^2 + 3$$

4. Write $y = -3x^2 + 6x - 3$ in vertex form. Name the coordinates of the vertex.

$$\begin{array}{cccc} -3 & -3 & -3 & -3 \end{array}$$

$$\frac{y}{-3} = x^2 - 2x + 1$$

$$\frac{y}{-3} - 1 + 1 = x^2 - 2x + 1$$

$$\frac{y}{-3} = (x-1)^2$$

$$y = -3(x-1)^2$$

Vertex $(1, 0)$