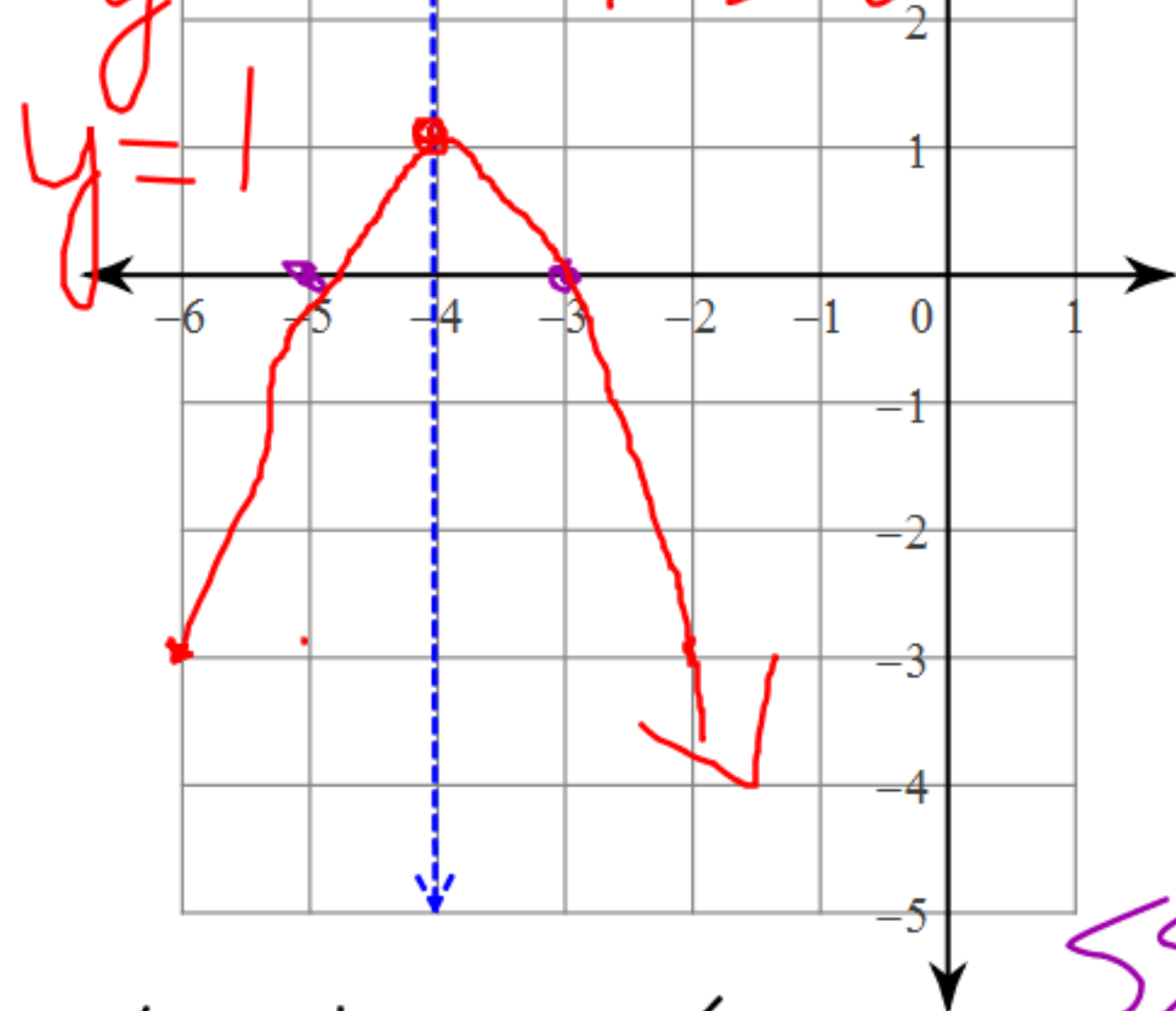


Sketch the graph of each function.

6) $y = -x^2 - 8x - 15$

$y_{\text{int.}} = (0, -15)$
 $y = -(-4)^2 - 8(-4) - 15$
 $y = -16 + 32 - 15$



Vertex $(-4, 1)$
 $y = (x+4)^2 + 1$

$$y = -x^2 - 8x - 15 \quad (\times) 15$$

$$= -1x^2 - 8x - 15 \quad (+) 8$$

$$y = -1(x^2 + 8x + 15) \quad (5, 3)$$

$$y = -1(x^2 + 5x + 3x + 15)$$

$$y = [1x(x+5) + 3(x+5)]$$

$$y = -1(x+5)(x+3)$$

Either $x+5=0$ or $x+3=0$

$$SS = \{-5, -3\} \quad x = -5 \text{ or } x = -3$$

$$AGFS - x = -4$$

Max

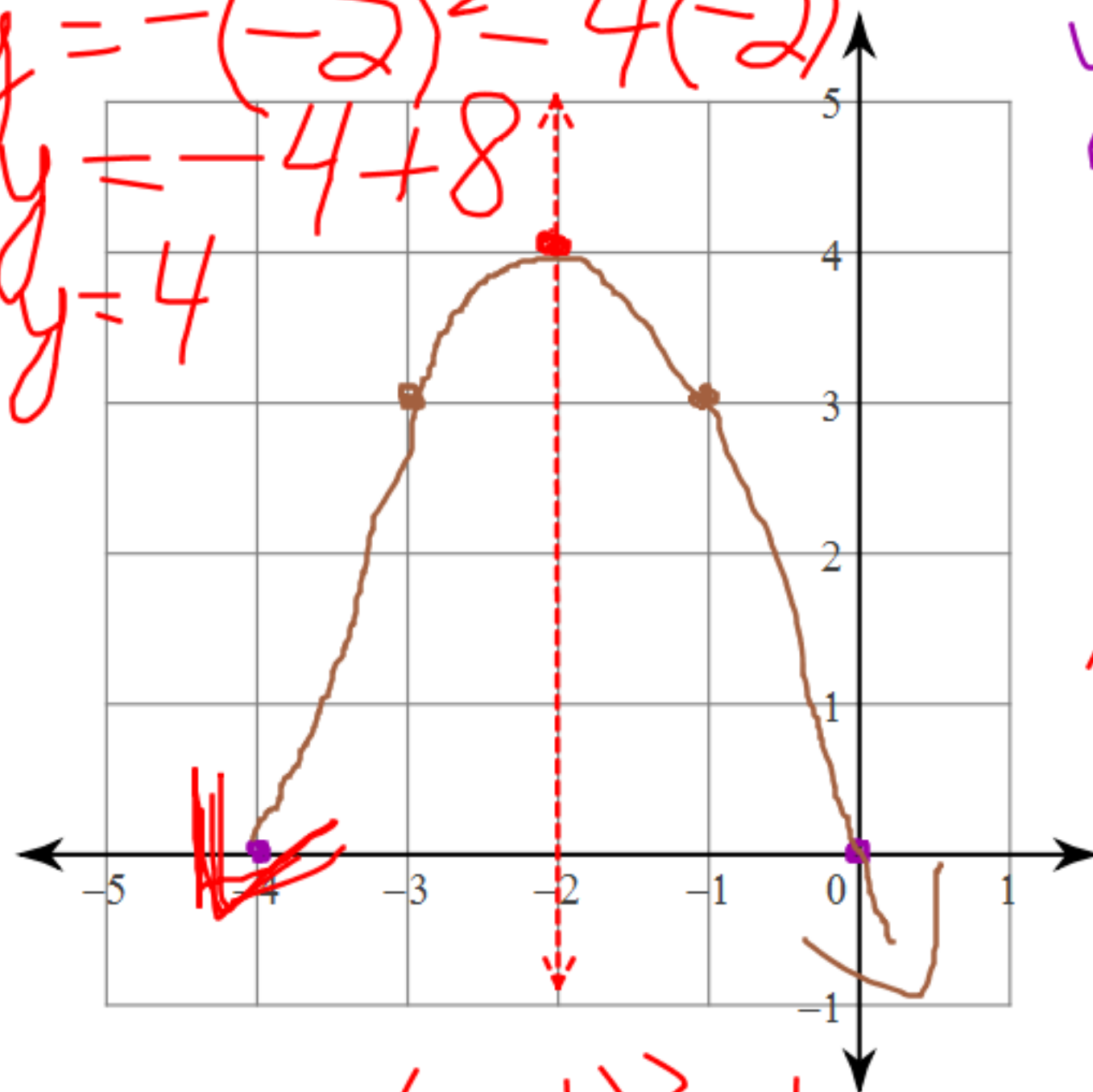
Sketch the graph of each function.

7) $y = -x^2 - 4x$

$$y = -(-2)^2 - 4(-2)$$

$$y = -4 + 8$$

$$y = 4$$



$$y = \frac{-x^2 - 4x}{-1}$$

$$y = (-1)(x + 4)$$

Either $-1 = 0$ or $x + 4 = 0$

$$-1 = 0 \quad x = -4$$

$$SS = \{0, -4\}$$

max

A of S $x = -2$

Vertex $(-2, 4)$

y-int = $(0, 0)$

∩

$$y = a(x-h)^2 + k$$

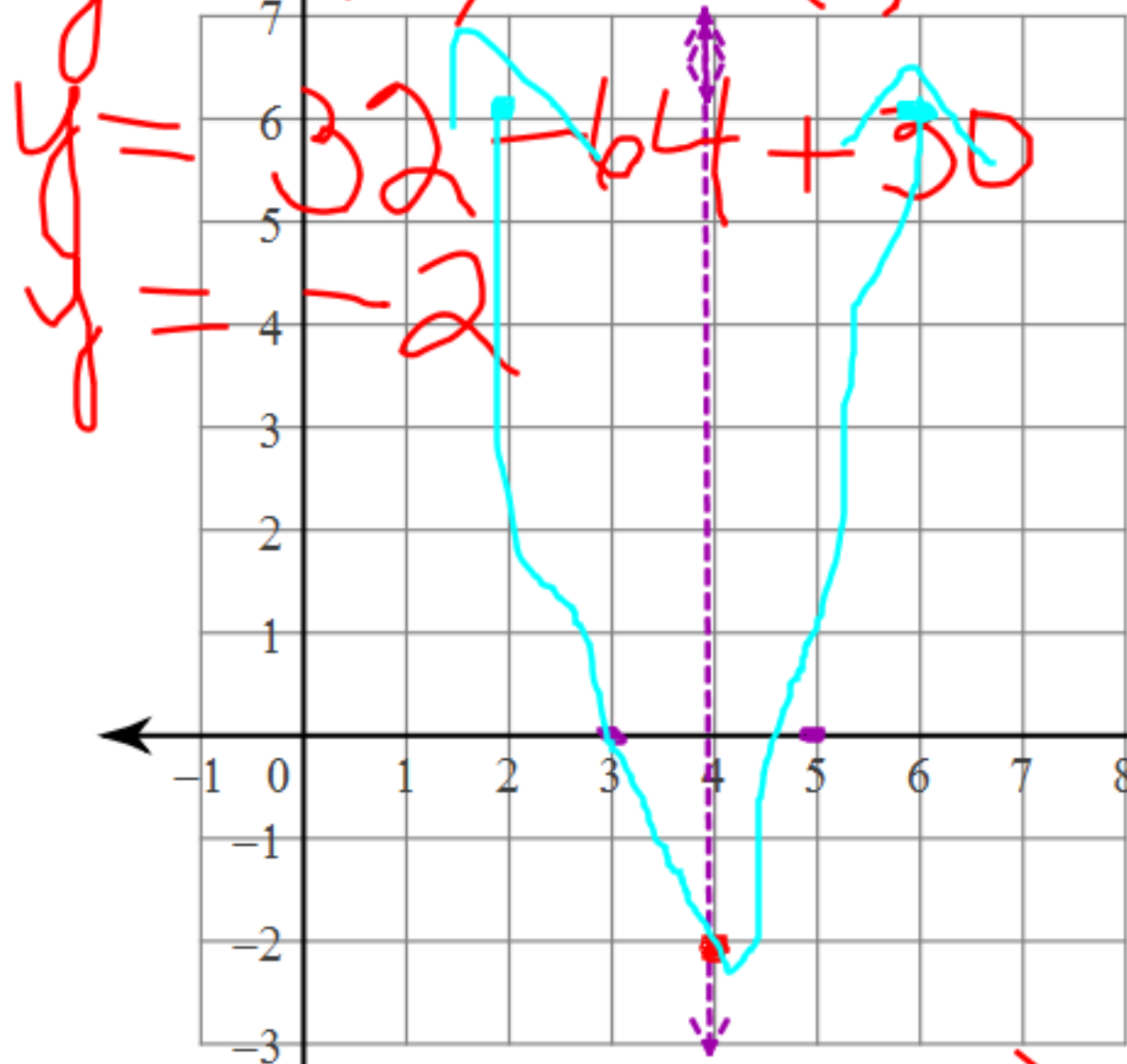
$$y = -(x+2)^2 + 4$$

Sketch the graph of each function.

$$y\text{-int} = (0, 30)$$

$$8) y = 2x^2 - 16x + 30$$

$$y = 2(4)^2 - 16(4) + 30$$



$$\text{Vertex} = (4, -2)$$

$$y = 2(x-4)^2 - 2$$

$$y = \frac{2x^2}{2} - \frac{16x}{2} + \frac{30}{2} \quad \begin{matrix} \textcircled{\times} 15 \\ \textcircled{+} -8 \end{matrix}$$

$$y = 2(x^2 - 8x + 15) \quad \leftarrow \begin{matrix} 5 \\ 1 \end{matrix} \begin{matrix} -3 \\ 3 \end{matrix}$$

$$y = 2(x^2 - 5x - 3x + 15)$$

$$y = 2[x(x-5) - 3(x-5)]$$

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

Either $x-3=0$ or $x-5=0$

$$x=3 \text{ or } x=5$$

Zeros SS $\{3, 5\}$

Minimum

$$\text{A of S} = x-4$$