HW: Vertex Form.....use pages 63 & 64

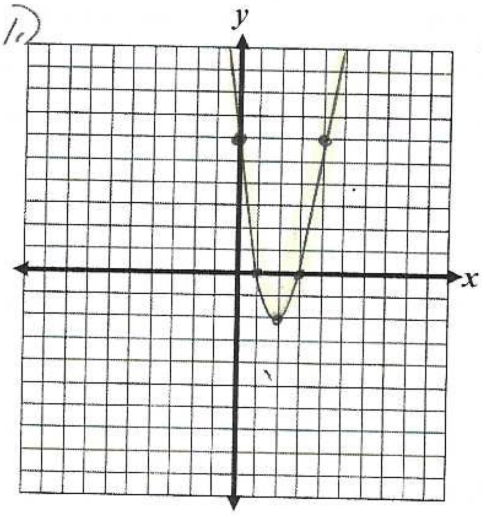
1. Rewrite $y = 2x^2 - 8x + 6$ in vertex form then state the vertex. Find the zeros in simplest radical form. Sketch the graph.

2. Rewrite $y = 5x^2 + 10x - 2$ in vertex form then state the vertex. Find the zeros in simplest radical form Sketch the graph.

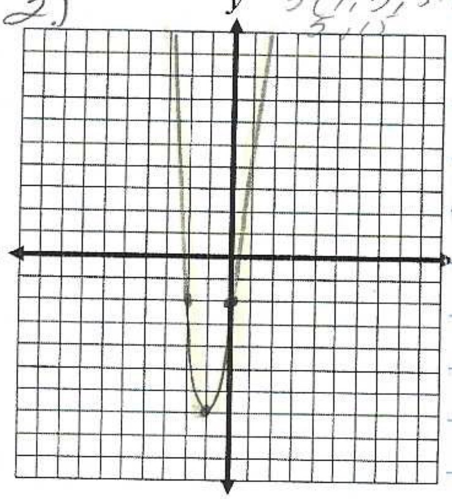
3. Rewrite $y = 3x^2 + 6x - 15$ in vertex form then state the vertex. Find the zeros in simplest radical form Sketch the graph.

4. Rewrite $y = \frac{1}{2}x^2 + 2x - 4$ in vertex form then state the vertex. Find the zeros in simplest radical form Sketch the graph.

1.)



2.) 5(1, 3, 5



$a = 2$ vertex: $(2, -2)$

vertex form $\Rightarrow y = 2(x-2)^2 - 2$

$0 = 2(x-2)^2 - 2$

$+2 \qquad +2$

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

$\sqrt{1} = \sqrt{(x-2)^2}$

$\pm 1 = x - 2$

$+2 \qquad +2$

$2 \pm 1 = x$

3, 1 zeros

vertex: $(-1, -7)$ $a = 5$

$y = 5(x+1)^2 - 7$

$0 = 5(x+1)^2 - 7$

$+7 \qquad +7$

$\frac{7}{5} = \frac{5(x+1)^2}{5}$

$\sqrt{\frac{7}{5}} = \sqrt{(x+1)^2}$

$\pm\sqrt{\frac{7}{5}} = x + 1$

$-1 \qquad -1$

$-1 \pm \sqrt{\frac{7}{5}} = x$

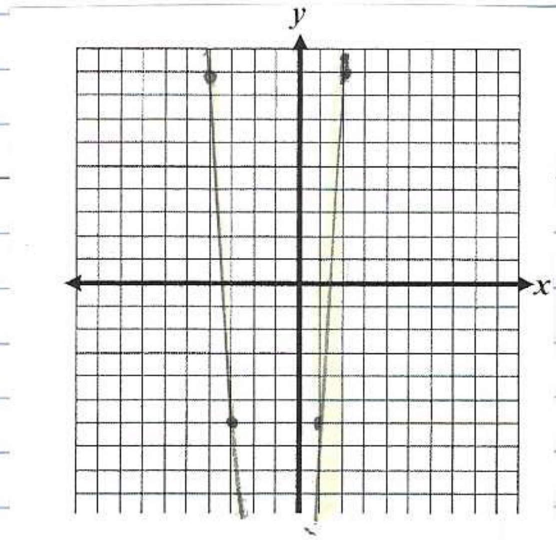
$\frac{\sqrt{7}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$

$\frac{\sqrt{35}}{5}$

$-1 \pm \frac{\sqrt{35}}{5} = x$

3) vertex: $(-1, -18)$ $a = 3$

$y = 3(x+1)^2 - 18$



$0 = 3(x+1)^2 - 18$

$+18 \qquad +18$

$\frac{18}{3} = \frac{3(x+1)^2}{3}$

$\sqrt{6} = \sqrt{(x+1)^2}$

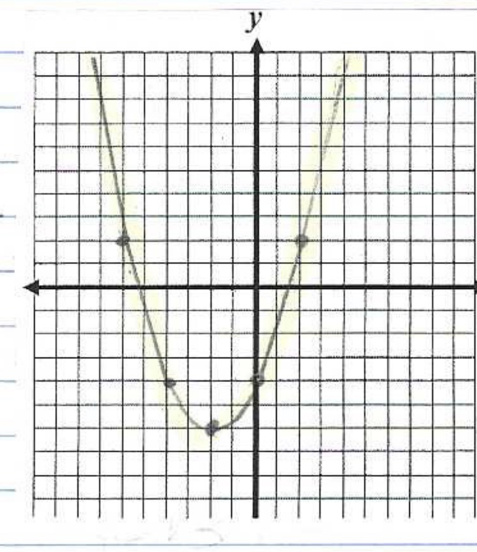
$\pm\sqrt{6} = x + 1$

$-1 \qquad -1$

$-1 \pm \sqrt{6} = x$

4) vertex: $(-2, -6)$ $a = \frac{1}{2}$

$y = \frac{1}{2}(x+2)^2 - 6$



$0 = \frac{1}{2}(x+2)^2 - 6$

$+6 \qquad +6$

$\frac{6}{\frac{1}{2}} = \frac{\frac{1}{2}(x+2)^2}{\frac{1}{2}}$

$\sqrt{12} = \sqrt{(x+2)^2}$

$\pm\sqrt{12} = x + 2$

$-2 \qquad -2$

$-2 \pm \sqrt{12} = x$

$-2 \pm \sqrt{3} = x$

$* \sqrt{12}$

$\sqrt{4 \cdot 3}$

$2\sqrt{3}$