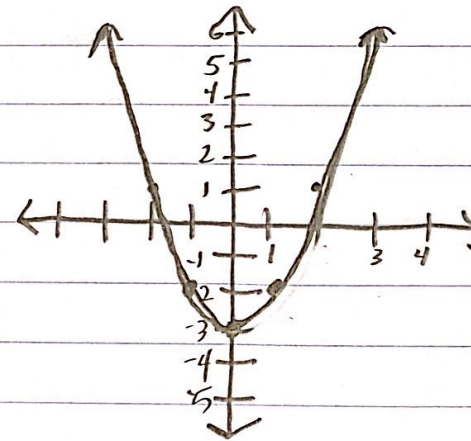


HW 6B: 1bdf

1b.) $f(x) = x^2 - 3$ (parent function shifts down 3)

x	-3	-2	-1	0	1	2	3
y	6	1	-2	-3	-2	1	6



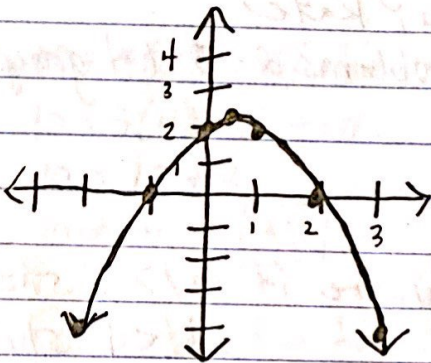
1d.) $f(x) = -x^2 + x + 2$ \downarrow $\left(\frac{-b}{2a}\right)$ $\frac{-1}{2(-1)} = \frac{-1}{-2} = \frac{1}{2}$ vertex: $\left(\frac{1}{2}, 2\frac{1}{4}\right)$

x	-2	-1	0	$\frac{1}{2}$	1	2	3
y	-4	0	2	$2\frac{1}{4}$	2	0	-4

$$-\left(\frac{1}{2}\right)^2 + \left(\frac{1}{2}\right) + 2 = \frac{-1}{4} + \frac{1}{2} + 2 = 2\frac{1}{4}$$

$$-(-1)^2 - 1 + 2 = 0$$

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



1f.) $f(x) = -2x^2 + 3x + 10$

$$\frac{-b}{2a} = \frac{-3}{2(-2)} = \frac{-3}{-4} = \frac{3}{4}$$

Not the same distance so not symmetric

x	-2	-1	0	$\frac{3}{4}$	1	2	3
y	-4	5	10	$11\frac{1}{8}$	11	8	1

$$-2\left(\frac{3}{4}\right)^2 + 3\left(\frac{3}{4}\right) + 10 = -2\left(\frac{9}{16}\right) + \frac{9}{4} + 10$$

$$\Rightarrow \frac{-9}{8} + \frac{9}{4} + 10 \Rightarrow \frac{-9}{8} + \frac{18}{8} + 10$$

$$\Rightarrow \frac{9}{8} + 10 = 11\frac{1}{8} \text{ vertex: } \left(\frac{3}{4}, 11\frac{1}{8}\right)$$

$$-2(1)^2 + 3(1) + 10 = -2 + 3 + 10 = 11$$

$$-2(2)^2 + 3(2) + 10 = -8 + 6 + 10 = 8$$

$$-2(3)^2 + 3(3) + 10 = -18 + 9 + 10 = 1$$

$$-2(-1)^2 + 3(-1) + 10 = -2 - 3 + 10 = 5$$

$$-2(-2)^2 + 3(-2) + 10 = -8 - 6 + 10 = -4$$

