

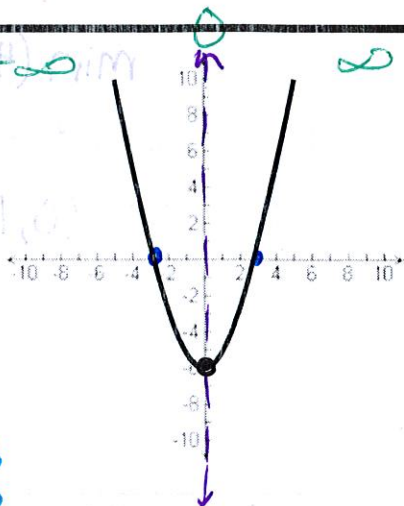
Name: hey

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Characteristics of Functions

1.

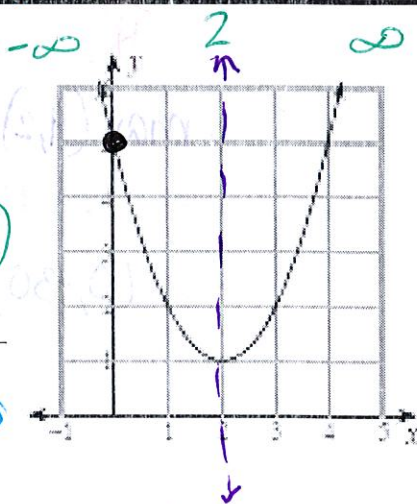
- a. Domain: \mathbb{R} b. Range: $[-6, \infty)$
 c. Extrema: min (0, -6) d. Axis of Sym: $x=0$
 e. Increasing: $(0, \infty)$ f. Decreasing: $(-\infty, 0)$
 g. Y-Intercept: $(0, -6)$ h. Solutions: $x=3, -3$



- i. End Behavior: $x \rightarrow +\infty \quad f(x) \rightarrow \infty$
 $x \rightarrow -\infty \quad f(x) \rightarrow \infty$

2.

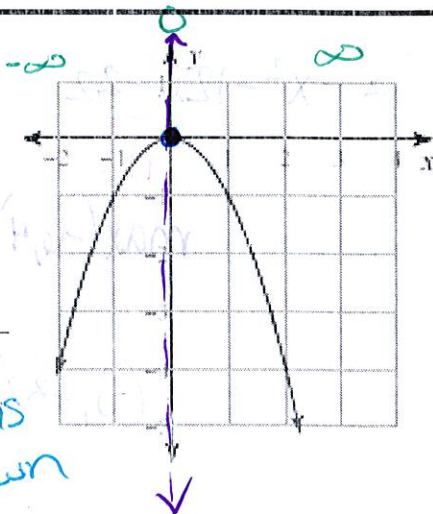
- a. Domain: \mathbb{R} b. Range: $[1, \infty)$
 c. Extrema: min (2, 1) d. Axis of Sym: $x=2$
 e. Increasing: $(2, \infty)$ g. Decreasing: $(-\infty, 2)$
 g. Y-Intercept: $(0, 5)$ h. Solutions: no real



- i. End Behavior: $x \rightarrow +\infty \quad f(x) \rightarrow \infty$
 $x \rightarrow -\infty \quad f(x) \rightarrow \infty$

3.

- a. Domain: \mathbb{R} b. Range: $(-\infty, 0]$
 c. Extrema: max (0, 0) d. Axis of Sym: $x=0$
 e. Increasing: $(-\infty, 0)$ h. Decreasing: $(0, \infty)$
 g. Y-Intercept: $(0, 0)$ h. Solutions: $x=0$

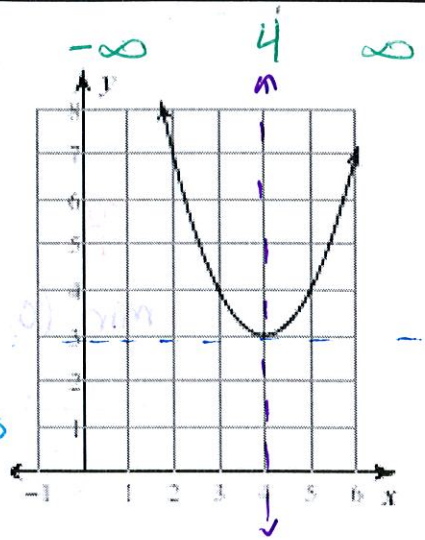


- i. End Behavior: $x \rightarrow +\infty \quad f(x) \rightarrow -\infty$
 $x \rightarrow -\infty \quad f(x) \rightarrow -\infty$

4. $X^2 - 8X + 19$

- a. Domain: \mathbb{R} b. Range: $[3, \infty)$
 c. Extrema: $\min(4, 3)$ d. Axis of Sym: $X = 4$
 e. Increasing: $(4, \infty)$ i. Decreasing: $(-\infty, 4)$
 g. Y-Intercept: $(0, 19)$ h. Solutions: no real
 i. End Behavior: $X \rightarrow +\infty \quad f(x) \rightarrow \infty$
 $X \rightarrow -\infty \quad f(x) \rightarrow \infty$

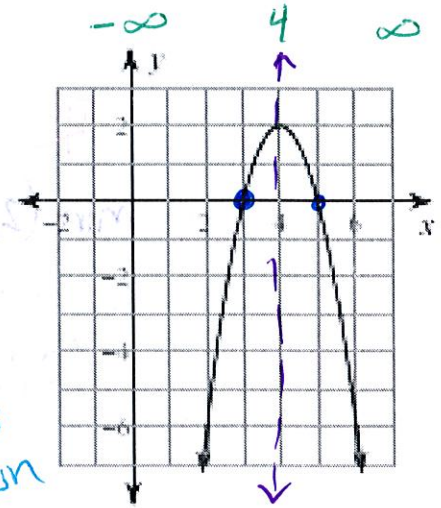
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5. $-2X^2 + 16X - 30$

- a. Domain: \mathbb{R} b. Range: $(-\infty, 2]$
 c. Extrema: $\max(4, 2)$ d. Axis of Sym: $X = 4$
 e. Increasing: $(-\infty, 4)$ f. Decreasing: $(4, \infty)$
 g. Y-Intercept: $(0, -30)$ h. Solutions: $X = 3, 5$
 i. End Behavior: $X \rightarrow +\infty \quad f(x) \rightarrow -\infty$
 $X \rightarrow -\infty \quad f(x) \rightarrow -\infty$

opens down



6. $-X^2 - 12X - 32$

- a. Domain: \mathbb{R} b. Range: $(-\infty, 4]$
 c. Extrema: $\max(-6, 4)$ d. Axis of Sym: $X = -6$
 e. Increasing: $(-\infty, -6)$ f. Decreasing: $(-6, \infty)$
 g. Y-Intercept: $(0, -32)$ h. Solutions: $X = -4, -8$
 i. End Behavior: $X \rightarrow +\infty \quad f(x) \rightarrow -\infty$
 $X \rightarrow -\infty \quad f(x) \rightarrow -\infty$

opens down

