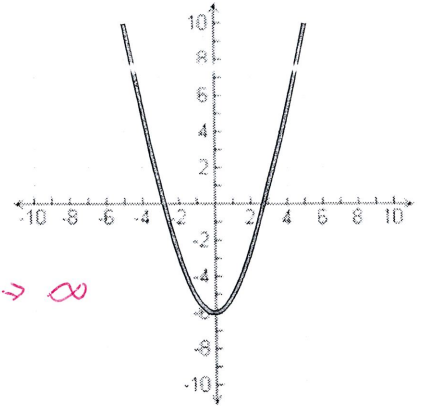


Name: _____ Date: _____

Characteristics of Functions

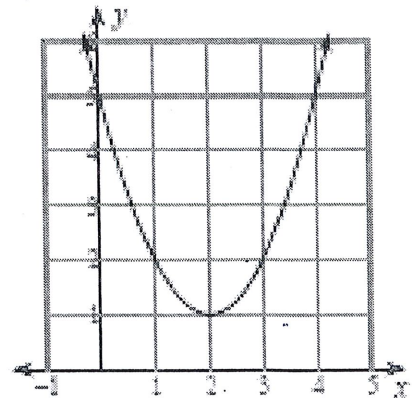
1.

- 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. End Behavior: $x \rightarrow \infty, f(x) \rightarrow \infty$; $x \rightarrow -\infty, f(x) \rightarrow \infty$
 h. Y-Intercept: $(0, -6)$ i. Solutions: $(-3, 0)$ $(3, 0)$



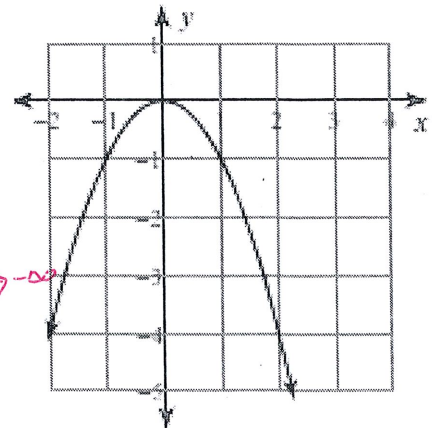
2.

- a. Domain: _____ b. Range: _____
 c. Extrema: _____ d. Axis of Sym: _____
 e. Increasing: _____ f. Decreasing: _____
 g. End Behavior: _____
 h. Y-Intercept: _____ i. Roots: _____



3.

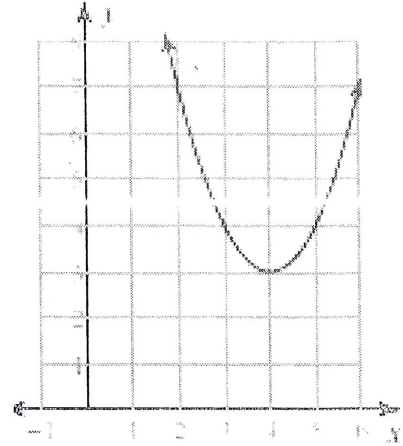
- a. Domain: \mathbb{R} b. Range: $(-\infty, 0]$
 c. Extrema: $\max: (0, 0)$ d. Axis of Sym: $x = 0$
 e. Increasing: $(-\infty, 0)$ f. Decreasing: $(0, \infty)$
 g. End Behavior: $x \rightarrow \infty, f(x) \rightarrow -\infty$; $x \rightarrow -\infty, f(x) \rightarrow -\infty$
 h. Y-Intercept: $(0,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



4. $f(x) = x^2 - 8x + 19$

- a. Domain: _____ b. Range: _____
- c. Extrema: _____ d. Axis of Sym: _____
- e. Increasing: _____ i. Decreasing: _____
- g. Y-Intercept: _____ h. Solutions: _____

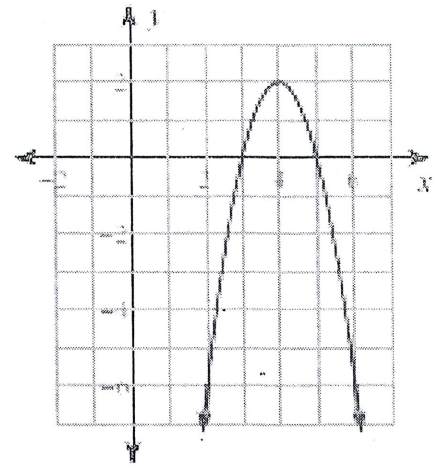
- i. End Behavior: $x \rightarrow -\infty \quad f(x) \rightarrow$ _____
 $x \rightarrow +\infty \quad f(x) \rightarrow$ _____



5. $f(x) = -2x^2 + 16x - 30$

- 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: $(3, 0)$ $(5, 0)$

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



6. $f(x) = -x^2 - 12x - 32$

- a. Domain: _____ b. Range: _____
- c. Extrema: _____ d. Axis of Sym: _____
- e. Increasing: _____ f. Decreasing: _____
- g. Y-Intercept: _____ h. Solutions: _____

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

