

1) $f(x) = -x^2 + 2x + 8$

Domain: \mathbb{R}

Range: $(-\infty, 9]$

Zeros: $\{-2, 4\}$

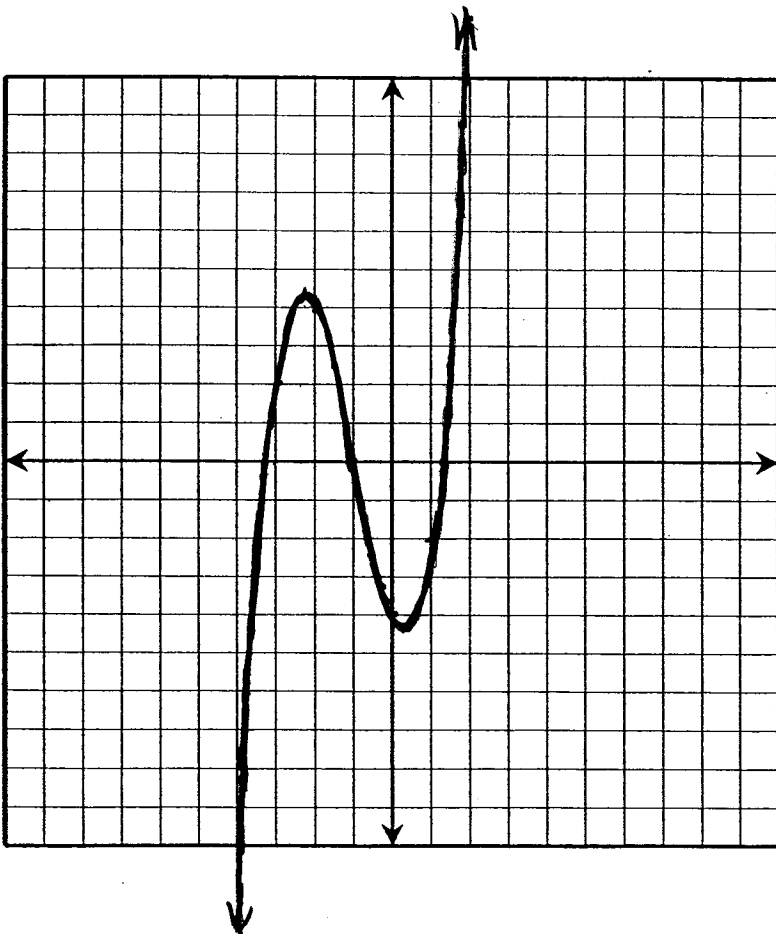
Y-Int: $(0, 8)$

Max's: $(1, 9)$

Min's: none

Increasing: $(-\infty, 1)$

Decreasing: $(1, \infty)$



2) $f(x) = x^3 + 3x^2 - 2x - 4$

Domain: \mathbb{R}

Range: \mathbb{R}

Zeros: $\{-3.24, -1, 1.24\}$

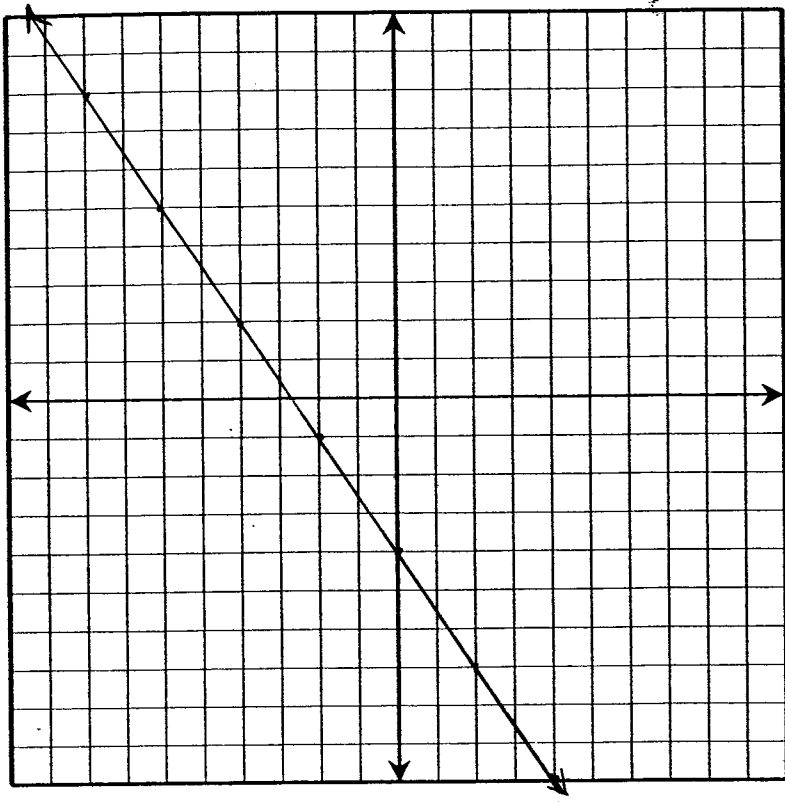
Y-Int: $(0, -4)$

Max's: $(-2.29, 4.30)$

Min's: $(0.29, -4.30)$

Increasing: $(-\infty, -2.29) (0.29, \infty)$

Decreasing: $(-2.29, 0.29)$



$$3) f(x) = -\frac{3}{2}x - 4$$

Domain \mathbb{R}

Range \mathbb{R}

Zeros $\left\{-\frac{8}{3}\right\}$

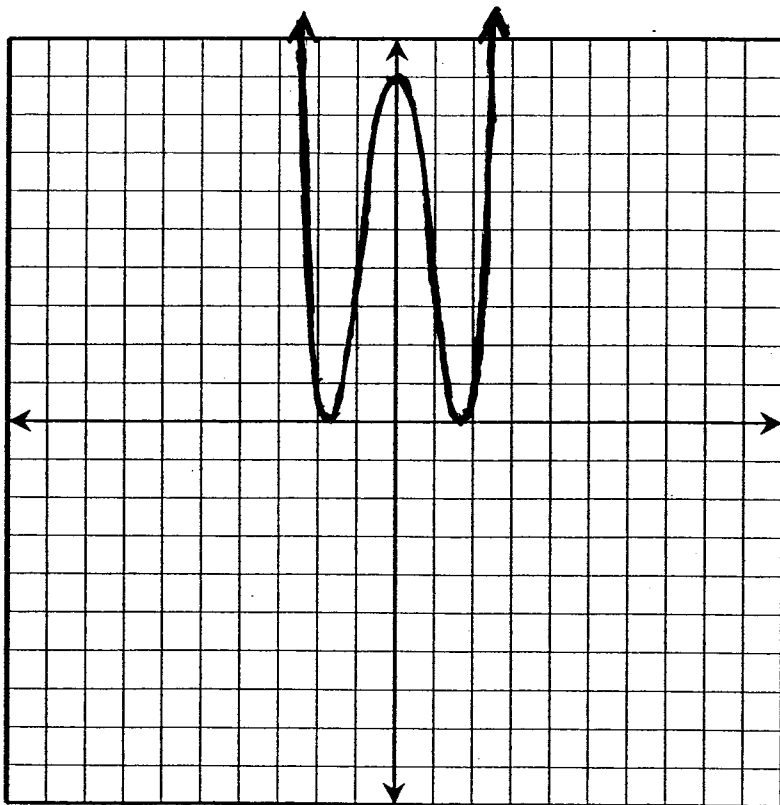
Y-Ints $(0, -4)$

Max's none

Min's none

Increasing never

Decreasing $(-\infty, \infty)$



$$4) f(x) = x^4 - 6x^2 + 9$$

Domain: \mathbb{R}

Range: $[0, \infty)$

Zeros: $\{-1.73, 1.73\}$

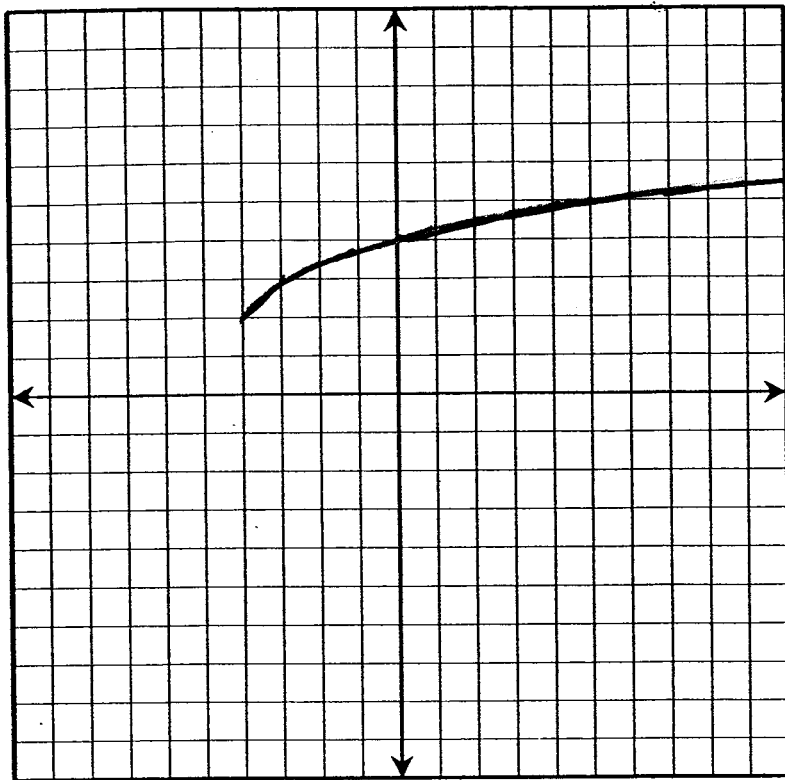
Y-Ints: $(0, 9)$

Max's: $(0, 9)$

Min's: $(-1.73, 0)$ $(1.73, 0)$

Increasing: $(-1.73, 0)$ $(1.73, \infty)$

Decreasing: $(-\infty, -1.73)$ $(0, 1.73)$



$$5) f(x) = \sqrt{x+4} + 2$$

$$\text{Domain: } [-4, \infty)$$

$$\text{Range: } [2, \infty)$$

$$\text{Zeros: } \emptyset$$

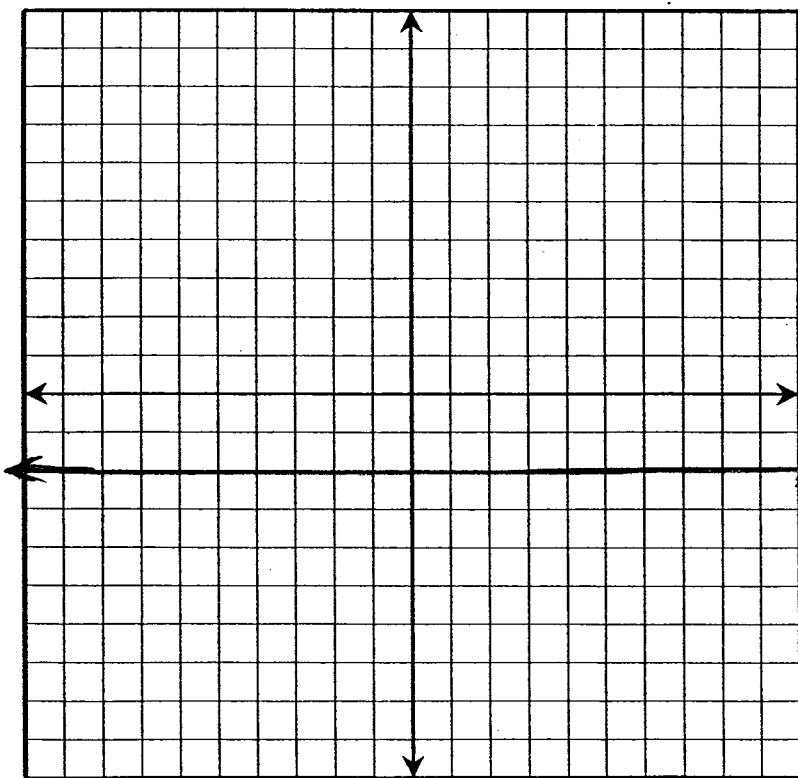
$$y\text{-Ints: } (0, 4)$$

$$\text{Max's: none}$$

$$\text{Min's: } (-4, 2)$$

$$\text{Increasing: } (-4, \infty)$$

$$\text{Decreasing: never}$$



$$6) f(x) = -2$$

$$\text{Domain: } \mathbb{R}$$

$$\text{Range: } \{-2\}$$

$$\text{Zeros: } \emptyset$$

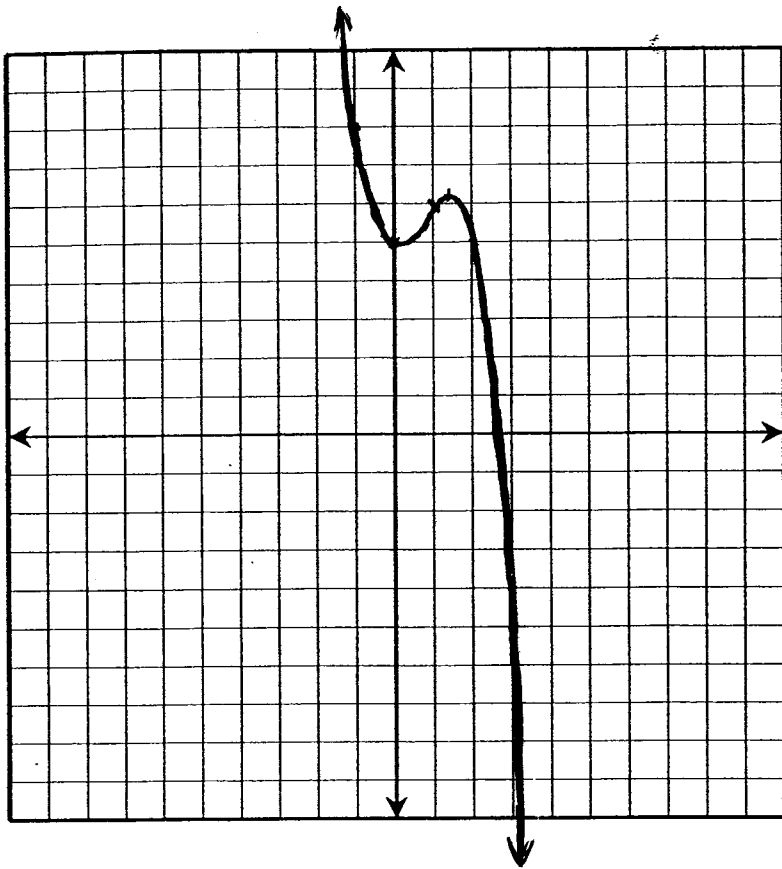
$$y\text{-Ints: } (0, -2)$$

$$\text{Max's: None}$$

$$\text{Min's: None}$$

$$\text{Increasing: Never}$$

$$\text{Decreasing: Never}$$



$$7) f(x) = -x^3 + 2x^2 + 5$$

Domain: \mathbb{R}

Range: \mathbb{R}

Zeros: $\{2.69\}$

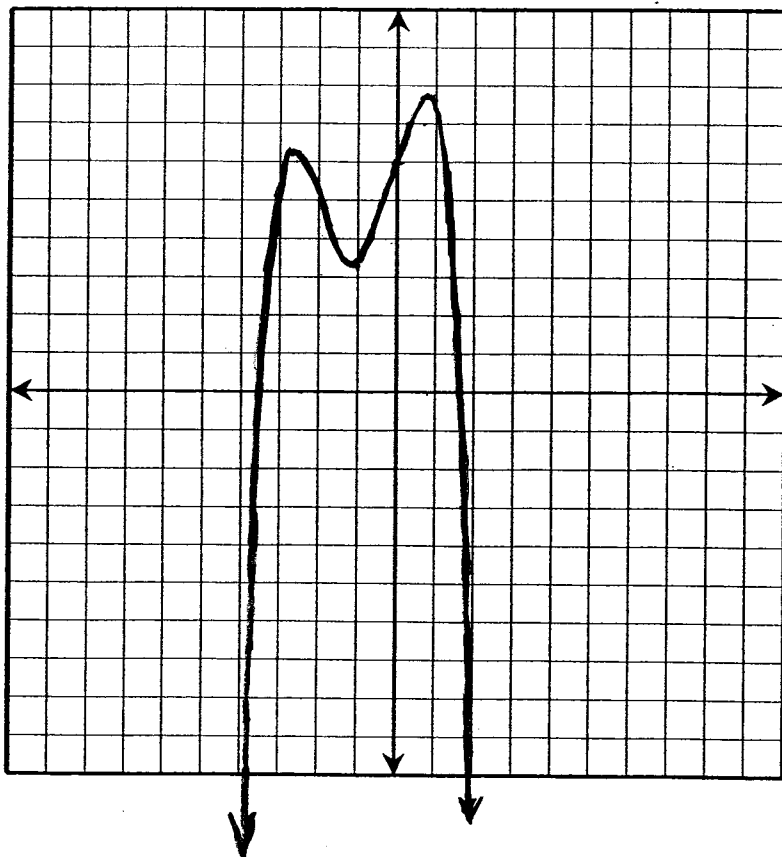
Y-Ints: $(0, 5)$

Max's: $(1.33, 6.19)$

Min's: $(2.69, 2.69)$

Increasing: $(0, 1.33)$

Decreasing: $(-\infty, 0) (1.33, \infty)$



$$8) f(x) = -\frac{1}{2}x^4 - 2x^3 - \frac{1}{4}x^2 + 4x + 6$$

Domain: \mathbb{R}

Range: $(-\infty, 7.87]$

Zeros: $\{-3.48, 1.61\}$

Y-Ints: 6

Max's: $(-2.61, 6.21) (0.70, 7.87)$

Min's: $(-1.09, 3.23)$

Increasing: $(-\infty, -2.61) (-1.09, 0.70)$

Decreasing: $(-2.61, -1.09) (0.70, \infty)$