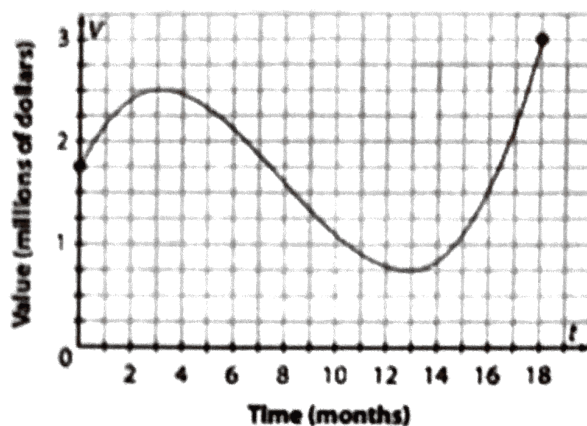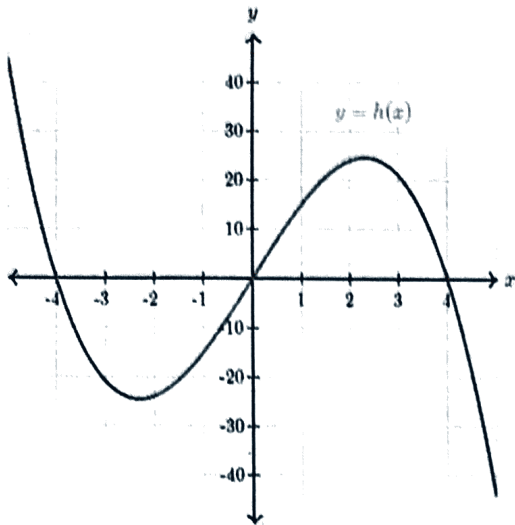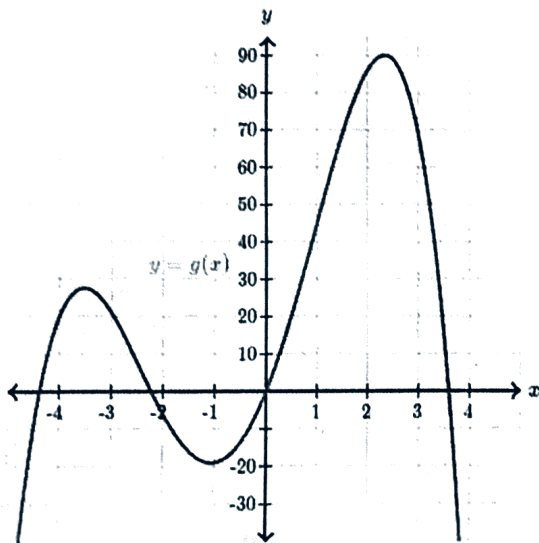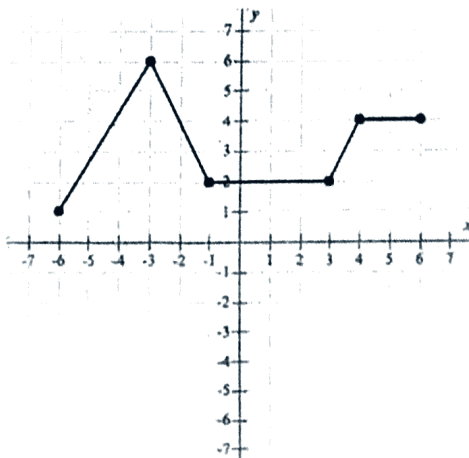# Analyze the Graph

1. x-intercepts:

2. y-intercepts:

3. Is it a function?

4. Domain (use set builder notation):

5. Range (use interval notation):

6. Find $f(3)$

7. Find $f(16)$

8. How many times does the horizontal line $y = 2$ intersect the graph?

9. List the approximate values of x for which $f(x) = 1$.

10. Evaluate $3f(0) - 2f(13)$

Q 11 & 12: Consider the interval [0, 13]

11. Find the average rate of change.

12. Find the relative maximum value.

13. Where is the graph increasing? Use interval notation.

14. Where is the graph decreasing? Use interval notation.

$y = h(x)$

1. Zeroes :

2. Y-intercept:

3. Is the graph a function? Why or why not?

4. Domain (use interval notation):

5. Range (use set builder notation)

6. Where is $f(x) > 0$?

7. Where is $f(x) \leq 0$?

$y = g(x)$

1. Find f(3).

2. Where is the function increasing? (use interval notation)

3. Where is the function decreasing? (use interval notation)

4. Find 3 x f(3).

5. How many times does the line y = 1 cross the graph?

6. Describe the end behavior.

1. On what intervals is the graph constant?

2. What is the domain?

3. What is the range?

4. What is the maximum?

5. What is the minimum?

6. For what value of x does f(x) = 1?

Analyze the Graph
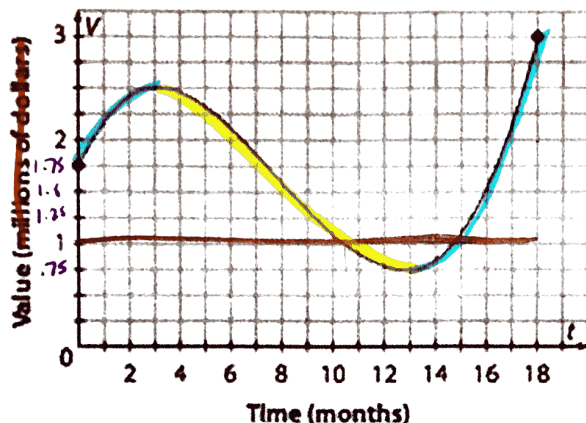
1. x-intercepts:

   None

2. y-intercepts:

   1.75

3. Is it a function? yes

4. Domain (use set builder notation):

   $\{x \mid 0 \le x \le 18\}$

5. Range (use interval notation):

   $(.75, 3]$

6. Find $f(3)$

   2.5

7. Find $f(16)$

   1.5

8. How many times does the horizontal line $y = 2$ intersect the graph?

   3

9. List the approximate values of x for which $f(x) = 1$.

   $\approx 10.6 \quad \approx 14.8$

10. Evaluate $3f(0) - 2f(13)$

    $5.25 - 1.5$

    3.75

Q 11 & 12: Consider the interval [0, 13]

11. Find the average rate of change.

    $(0, 1.75) \quad (13, .75)$

    $\frac{-1}{13}$

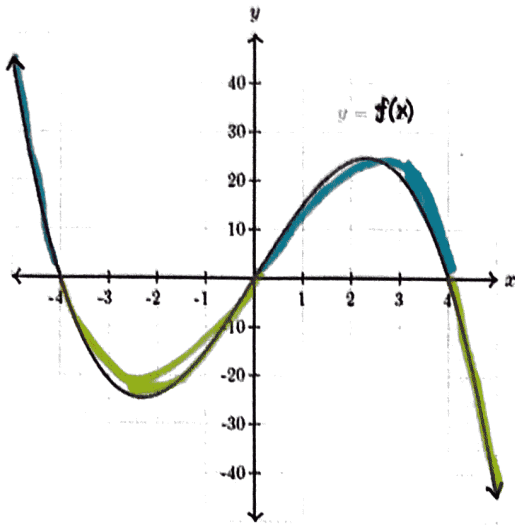12. Find the relative maximum value.

    2.5

13. Where is the graph increasing? Use interval notation.

    $(0, 3) + (13, 18)$

14. Where is the graph decreasing? Use interval notation.

    $(3, 13)$

$y = f(x)$

1. Zeroes: −4, 0, 4

2. Y-intercept: 0
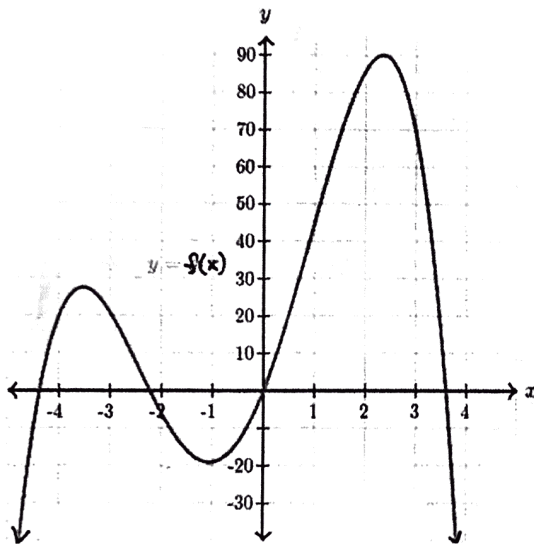
3. Is the graph a function? Why or why not? yes − each input has one output

4. Domain (use interval notation): $(-\infty, \infty)$

5. Range (use set builder notation) $\{y \mid y \in \mathbb{R}\}$

6. Where is $f(x) > 0$? $(-\infty, -4) + (0, 4)$

7. Where is $f(x) \le 0$? $[-4, 0] + [4, \infty)$

$y = f(x)$

1. Find f(3). 70

2. Where is the function increasing? (use interval notation) $(-\infty, -3.5) + (-1, 2.5)$

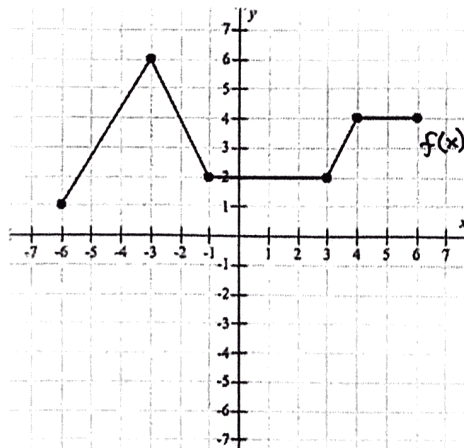3. Where is the function decreasing? (use interval notation) $(-3.5, -1) + (2.5, \infty)$

4. Find $f(-1) \cdot f(0)$ $-20 \cdot 0 = \boxed{0}$

5. How many times does the line y = 10 cross the graph? 4

6. Describe the end behavior.
As $x \to \infty$, $f(x) \to -\infty$
As $x \to -\infty$, $f(x) \to -\infty$

8. Find the average rate of change on the interval [-1, 3]

Extra practice if you want $(-1, -20)$ $(3, 70)$ $\frac{70-(-20)}{3-(-1)}$ $\frac{90}{4}$ $\boxed{\frac{45}{2}}$

$f(x)$

1. On what intervals is the graph constant? (use interval notation) $(-1, 3)$

2. What is the domain? (use set notation) $\{x \mid -6 \le x \le 6\}$

3. What is the range? (use interval notation) $[1, 6]$

4. What is the maximum? 6

5. What is the minimum? 1

6. For what value of x does f(x) = 1? −6