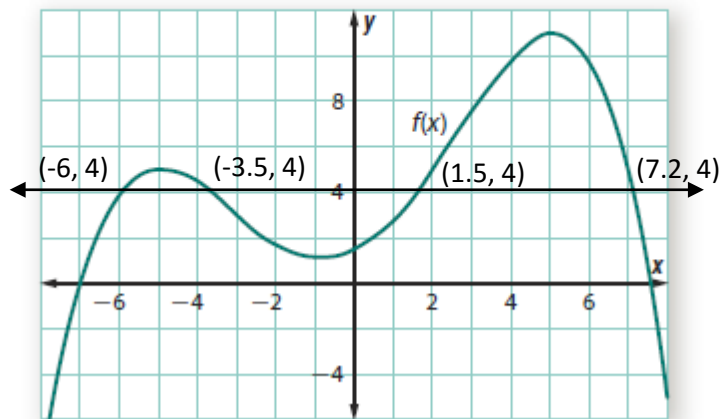


Use information from this graph of the function $f(x)$ to answer the questions that follow.



- A) When I read the questions, the first thing I did was draw a horizontal line across the graph where $f(x) = 4$. This is my reference line to answer both #1 and #2. The intersection points were not perfectly clear on a couple of them, so I estimated.
- B) When I wanted to include the endpoints, I used \leq or \geq in my inequality, brackets like this: $[\]$ in interval notation, and closed circles on my number line.
- C) If I did not want to include the endpoints, I used $<$ or $>$ in my inequality, parenthesis like this: $()$ in my interval notation, and open circles on my number line.

1. Describe the values of x for which $f(x) \geq 4$ using the following.

For this problem, I am including the endpoints and any part of the graph that is above my reference line. $f(x)$ is above the reference line between the x -values of -6 and -3.5 and between the x -values of 1.5 and 7.2 .

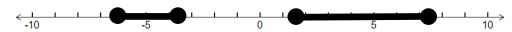
a. inequalities

$$-6 \leq x \leq -3.5 \text{ or } 1.5 \leq x \leq 7.2$$

b. interval notation

$$[-6, -3.5] \cup [1.5, 7.2]$$

c. a number line graph



2. Describe the values of x for which $f(x) < 4$ using the following.

For this problem, I am looking for any part of the graph that is below my reference line, NOT including the endpoints. $f(x)$ is below the reference line for all x -values up to -6 , between the x -values of -3.5 and 1.5 , and all x -values beyond 7.2 .

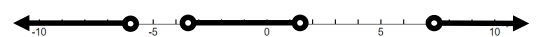
a. inequalities

$$x < -6 \text{ or } -3.5 < x < 1.5 \\ \text{or } x > 7.2$$

b. interval notation

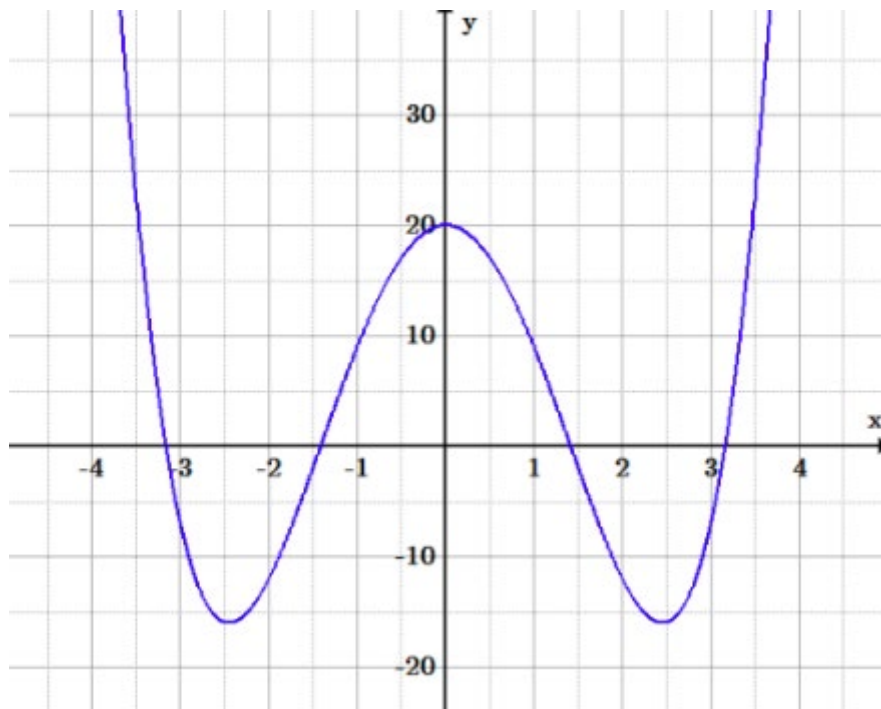
$$(-\infty, -6) \cup (-3.5, 1.5) \cup (7.2, \infty)$$

c. a number line graph



Additional Practice on the Back

Additional Practice:



Use the graph above to find the following:

- 1) Find all the values of x where $f(x) = 10$. (Drawing a line should help.) List them here:

- 2) Write inequalities to describe the values for x where $f(x) > 10$. Think about whether you should use $<$ or \leq and whether you are looking for when the graph is above or below the line.

- 3) Write the inequalities from #2 as intervals. Remember to be clear about whether or not you are including the endpoints. Connect the intervals with \cup to represent the word "or."

- 4) Draw a number line.

- 5) On the number line in #4, show the values for x that satisfy $f(x) > 10$. Again, be clear about whether you are including the endpoints.