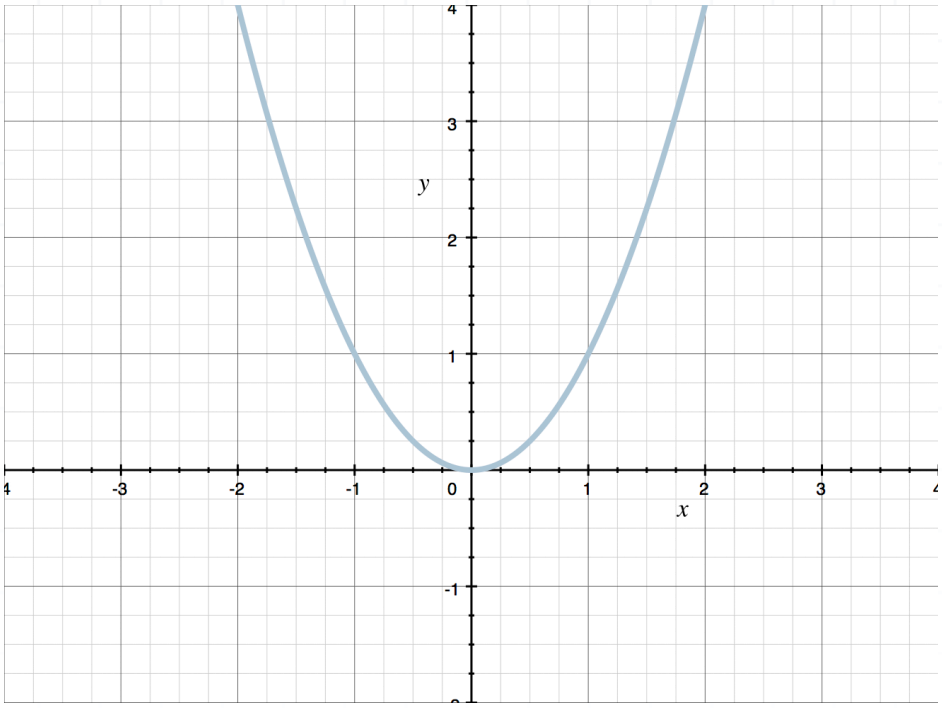
Topic: Domain and range from a graph

Question: What are the domain and range of the function? Assume the graph does not extend beyond what's shown in the graph.



Answer choices:

A The domain is any value of x between -2 and 2, and the range is any value of y between -3 and 0.

B The domain is any value of x between 0 and 3, and the range is any value of y between -2 and 2.

C The domain is any value of x between -3 and 0, and the range is any value of y between -2 and 2.

D The domain is any value of x between -2 and 2, and the range is any value of y between 0 and 4.

Solution: D

To find the domain of the function, start by looking at the leftmost point of the graph. That point is at

$$x = -2$$

Then the graph continues with no breaks until it ends at

$$x = 2$$

This means that the domain of the function is any value of x between -2 and 2.

To find the range of the function, start by looking at the lowest point of the graph. The y-coordinate of the lowest point is 0. The graph has two highest points, and the y-coordinate of each of the highest points is 4. There are no breaks in the graph going from the lowest point to either of the highest points. This means that the range of the function is any value of y between 0 and 4.

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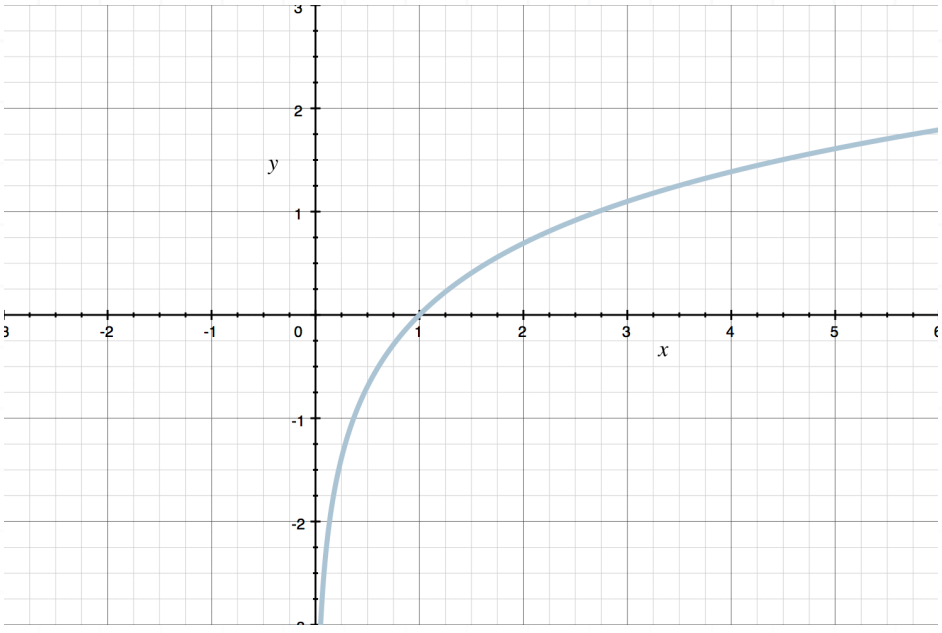

Answer choices:

A The domain is any value of x between -3 and 0, and the range is any value of y between $1/4$ and 1.

B The domain is any value of x between $1/4$ and 1, and the range is any value of y between 0 and 3.

C The domain is any value of x between 0 and 6, and the range is any value of y between -3 and $7/4$.

D The domain is any value of x between 0 and 3, and the range is any value of y between $1/4$ and 1.

Solution: C

To find the domain of the function, start by looking at the leftmost point of the graph. The x-coordinate of the leftmost point is about 0. Then the graph continues with no breaks until it ends at $x = 6$. This means that the domain of the function is any value of x between 0 and 6.

To find the range of the function, start by looking at the lowest point of the graph. The y-coordinate of the lowest point is -3. Then the graph continues with no breaks until it ends at about $y = 7/4$. This means that the range of the function is any value of y between -3 and $7/4$.

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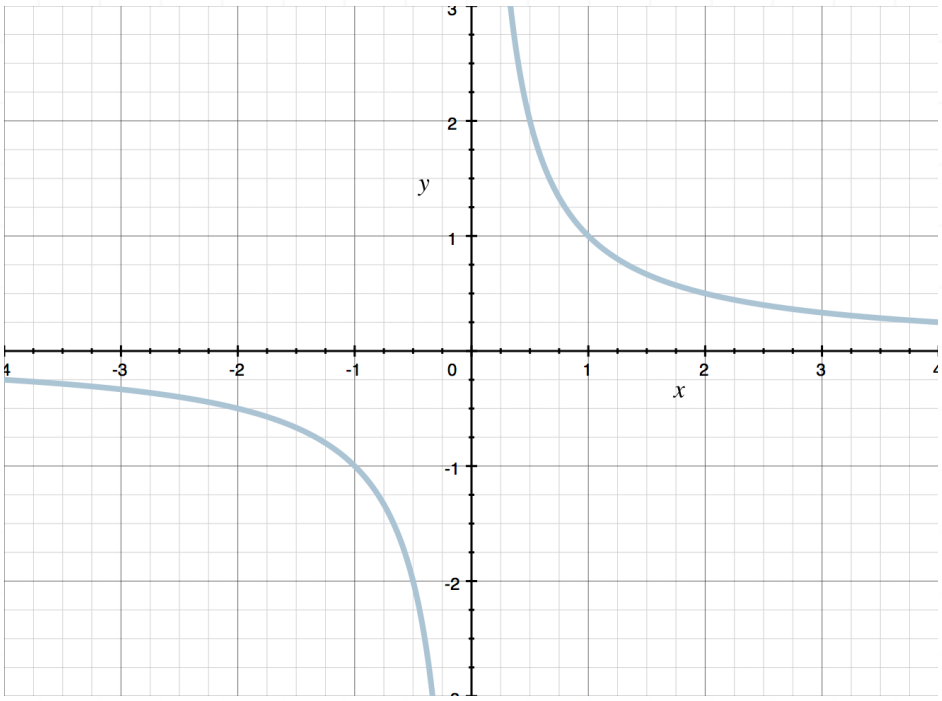

Answer choices:

A The domain is any value of x between -4 and $-1/4$, or between $1/4$ and 4, and the range is any value of y between -3 and $-1/4$, or between $1/4$ and 3.

B The domain is any value of x between -4 and $-1/4$, or between $1/4$ and 4, and the range is any value of y between -3 and $1/4$, or between $1/4$ and 3.

C The domain is any value of x between -4 and $1/4$, or between $1/4$ and 4, and the range is any value of y between -3 and $-1/4$, or between $1/4$ and 3.

D The domain is any value of x between -4 and $1/4$, or between $1/4$ and 4, and the range is any value of y between -3 and $1/4$, or between $1/4$ and 3.

Solution: A

To solve for the domain of the function on the graph, look at the graph from left to right. The first x-value that exists for the function is at $x = -4$, then there's a break at $x = -1/4$, and the function picks up again at $x = 1/4$ and continues smoothly until it ends at $x = 4$. This means the domain of the function is any value of x between -4 and $-1/4$, or between $1/4$ and 4.

To solve for the range of the function on the graph, look at the graph from bottom to top. The first y-value that exists for the function is at $y = -3$, then there's a break at $y = -1/4$, and the function picks up again at $y = 1/4$ and continues smoothly until it ends at $y = 3$. This means the range of the function is any value of y between -3 and $-1/4$, or between $1/4$ and 3.