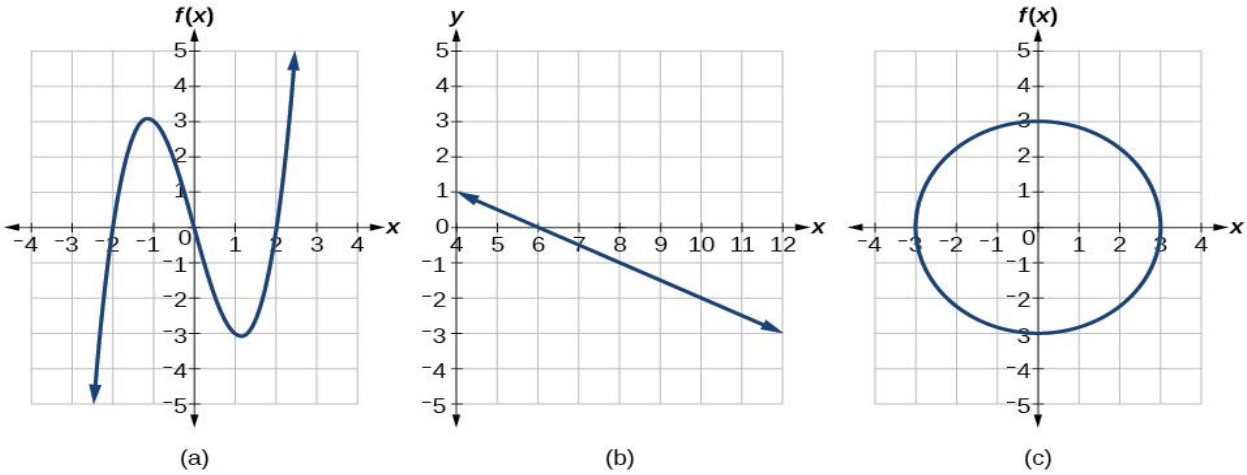
1.2 Answer Key

Practice 2-1-1:

Determine if it's a function.



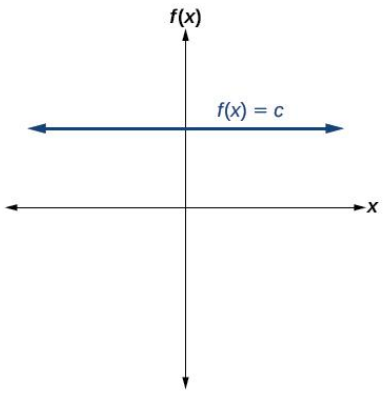
Graph a is a **function** because, when you move a vertical line across the graph, you see only one intersection point at every position. This means it passes the vertical line test.

Graph b is a **function** because, when you move a vertical line across the graph, you see only one intersection point at every position. This means it passes the vertical line test.

Graph c is **not functions** because there are points where the vertical line intersects the graph more than once.

Practice 2-2-1:

Select the correct answer. Find the domain and range of the function f whose graph is shown.

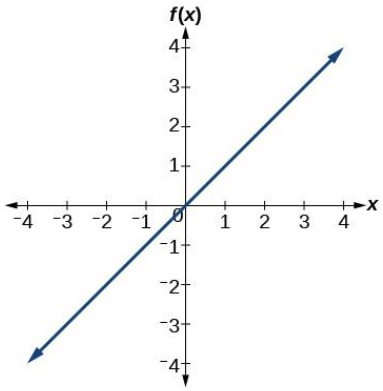


Answer is D, Domain $(-\infty, \infty)$, Range {C}.

The horizontal extent of the graph is from $-\infty$ (since it has an arrow pointing to the left) to ∞ (since it has an arrow pointing to the right). The graph is continuous, so the domain of f is $(-\infty, \infty)$. *Note: Always use parentheses for infinities.* The vertical extent of the graph is only at C, so the range is {C}.

Practice 2-2-2:

Select the correct answer. Find the domain and range of the function f whose graph is shown.

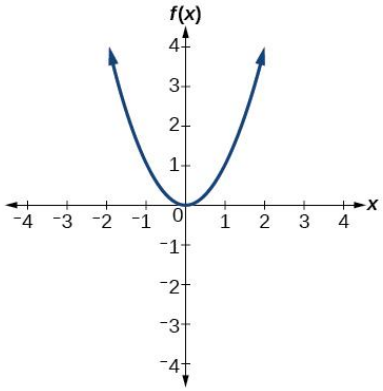


Answer is A, Domain $(-\infty, \infty)$, Range $(-\infty, \infty)$

The horizontal extent of the graph is from $-\infty$ (since it has an arrow pointing to the left) to ∞ (since it has an arrow pointing to the right). The graph is continuous, so the domain of f is $(-\infty, \infty)$. *Note: Always use parentheses for infinities.* The vertical extent of the graph is from $-\infty$ (since it has an arrow pointing to the left down) to ∞ (since it has an arrow pointing to the right up). The graph is continuous, so the range of f is $(-\infty, \infty)$.

Practice 2-2-3:

Select the correct answer. Find the domain and range of the function f whose graph is shown.

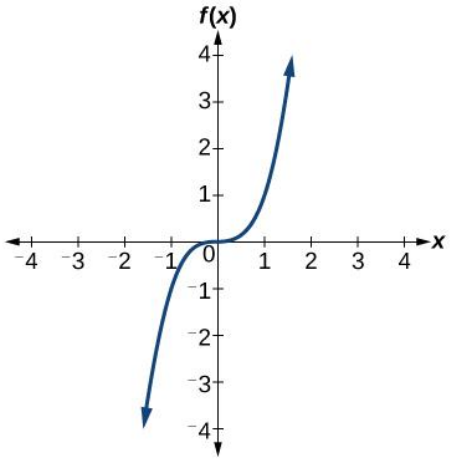


Answer is B, Domain $(-\infty, \infty)$, Range $[0, \infty)$

The horizontal extent of the graph is from $-\infty$ (since it has an arrow pointing to the left up) to ∞ (since it has an arrow pointing to the right up). The graph is continuous, so the domain of f is $(-\infty, \infty)$. *Note: Always use parentheses for infinities.* The vertical extent of the graph is from 0 (since the lowest point on the graph is at (0,0), thus the smallest y value is 0 to ∞ (it has an arrow pointing to the left up and right up, both are going up, thus it will be ∞). The graph is continuous, so the range of f is [0, ∞). We use bracket in here because the y value includes 0 on this graph.

Practice 2-2-4:

Select the correct answer. Find the domain and range of the function f whose graph is shown.

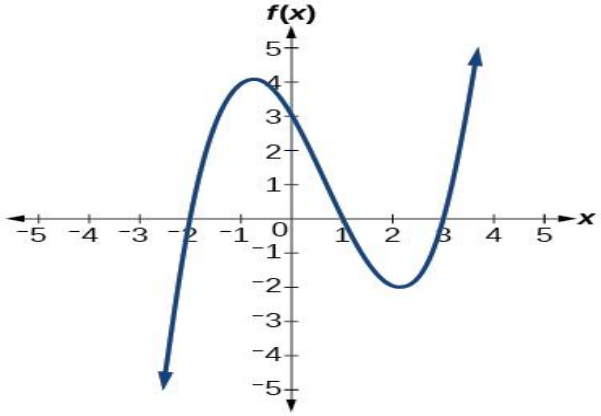


Answer is A, Domain $(-\infty, \infty)$, Range $(-\infty, \infty)$

The horizontal extent of the graph is from $-\infty$ (since it has an arrow pointing to the left) to ∞ (since it has an arrow pointing to the right). The graph is continuous, so the domain of f is $(-\infty, \infty)$. *Note: Always use parentheses for infinities.* The vertical extent of the graph is from $-\infty$ (since it has an arrow pointing to the left down) to ∞ (since it has an arrow pointing to the right up). The graph is continuous, so the range of f is $(-\infty, \infty)$.

Practice 2-3-1:

Find the x-intercept(s) and y-intercept, entering value only and separate the answer with comma. For example: 1,2. If you can't find the intercept, please enter N/A.

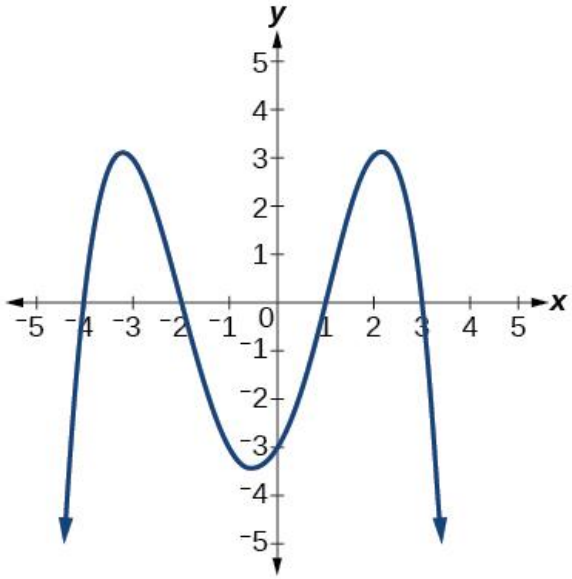


Answer: x-intercepts are -2,1,3 and y-intercept is -3.

To find the x-intercept, we look for the point where the y-value is 0 (i.e., where the graph touches the x-axis). When finding the y-intercept, the x-value is always 0, which is where the graph touches or crosses the y-axis.

Practice 2-3-2:

Find the x-intercept(s) and y-intercept, entering value only and separate the answer with comma. For example: 1,2 .If you can't find the intercept, please enter N/A.

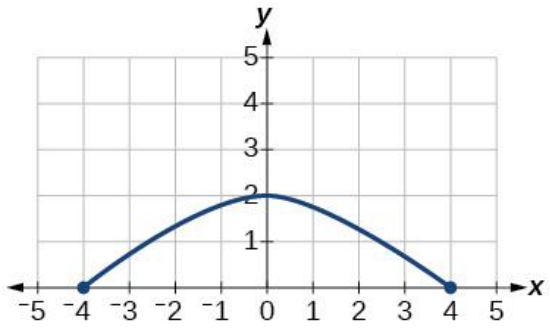


Answer: x-intercepts are -4, -2,1 ,3 and y-intercept is -3

To find the x-intercept, we look for the point where the y-value is 0 (i.e., where the graph touches the x-axis). When finding the y-intercept, the x-value is always 0, which is where the graph touches or crosses the y-axis.

Practice 2-3-3:

Find the x-intercept(s) and y-intercept, entering value only and separate the answer with comma. For example: 1,2. If you can't find the intercept, please enter N/A.

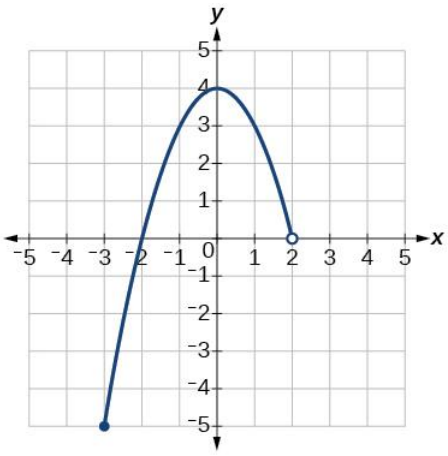


Answer: x-intercepts are -4 ,4. The y-intercept is 2.

Note: in this graph, both endpoints are closed dots, so we consider the graph to touch the ending locations. Therefore, the graph touches the x-axis at both ends.

Practice 2-3-4:

Find the x-intercept(s) and y-intercept, entering value only and separate the answer with comma. For example: 1,2. If you can't find the intercept, please enter N/A.



Answer: x-intercept is -2. y-intercept is 4.

Note: In this graph, the left endpoint is a closed dot, so the graph does not extend to the left and includes that point. The right endpoint is an open circle, which means the graph gets closer to that specific point but never touches or passes it. Therefore, we can't consider the right endpoint as touching the x-axis. Overall, in this graph, we have only one x-intercept at (2, 0) and one y-intercept at (0, 4).