1.2 Defining Limits

**Limits**

As x approaches ___, $f(x)$ approaches ___.
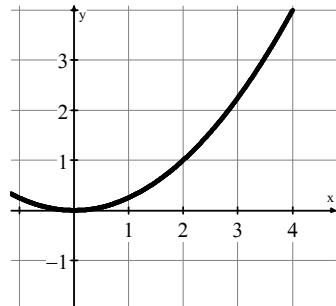
$\lim_{x \to 2} f(x) =$

$f(2) =$
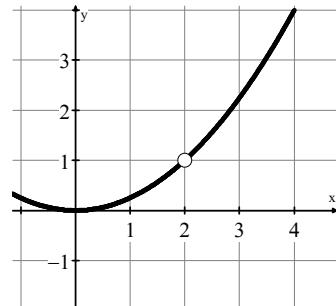
$\lim_{x \to 2} f(x) =$

$f(2) =$
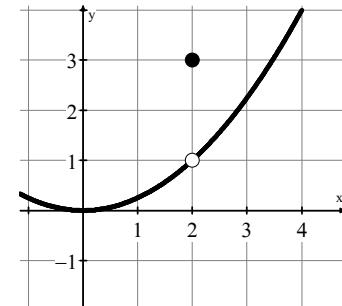
$\lim_{x \to 2} f(x) =$

$f(2) =$

Use the following graph to evaluate each problem.

f(x)
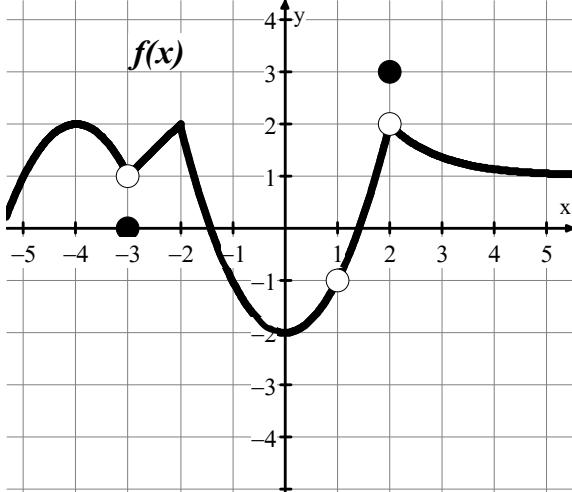
1. $\lim_{x \to 1} f(x) =$ 2. $f(-3) =$

3. $\lim_{x \to 2} f(x) =$ 4. $f(2) =$

5. $f(1) =$ 6. $f(-2) =$

7. $\lim_{x \to 0} f(x) =$ 8. $\lim_{x \to -3} f(x) =$

9. Give an interpretation of the statement $\lim_{x \to 7} f(x) = 10$

A limit does NOT tell us the value of $f(x)$. It just tells us what the function approaches!

True or false? $f(1) = \lim_{x \to 1} f(x)$ in all cases.

True or false? $f(1) \neq \lim_{x \to 1} f(x)$ in all cases.

1.2 Defining Limits
Calculus

### Give an interpretation of each statement.

1. $\lim\limits_{x \to 1} f(x) = 9$

2. $\lim\limits_{x \to -2} f(x) = 3$

3. $\lim\limits_{x \to 4} f(x) = -8$

Use the following graph to evaluate each problem.
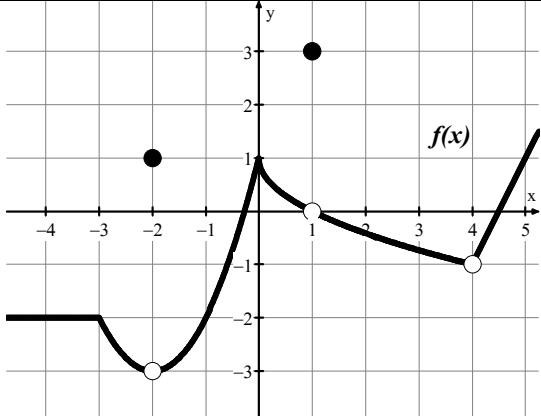
4. $f(-2) =$

5. $\lim\limits_{x \to 1} f(x) =$

6. $\lim\limits_{x \to -2} f(x) =$

7. $\lim\limits_{x \to 0} f(x) =$

8. $f(4) =$

9. $\lim\limits_{x \to 4} f(x) =$

10. $\lim\limits_{x \to -4} f(x) =$

11. $f(1) =$

Use the following graph to evaluate each problem.
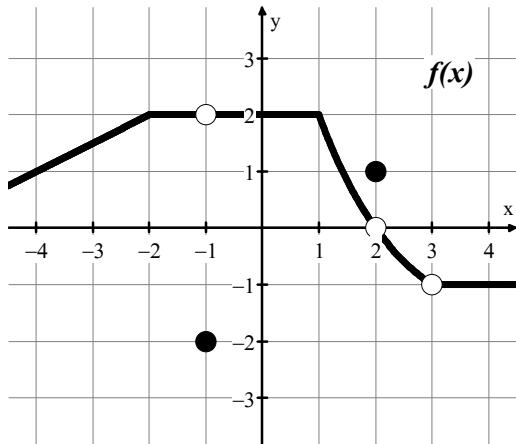
12. $\lim\limits_{x \to -1} f(x) =$

13. $\lim\limits_{x \to 3} f(x) =$

14. $f(2) =$

15. $\lim\limits_{x \to -2} f(x) =$

16. $\lim\limits_{x \to 1} f(x) =$

17. $f(3) =$

18. $f(-1) =$

19. $\lim\limits_{x \to 2} f(x) =$

Use the following graph to evaluate each problem.
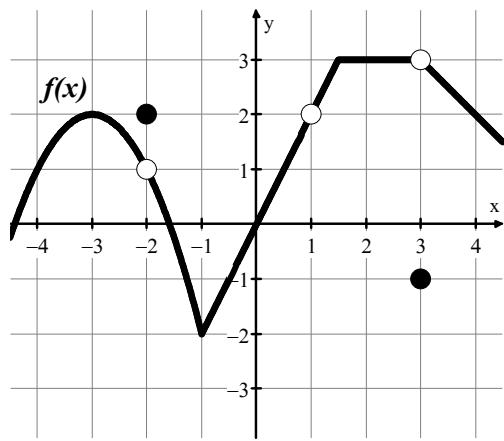
20. $\lim\limits_{x \to 2} f(x) =$

21. $f(1) =$

22. $\lim\limits_{x \to 3} f(x) =$

23. $\lim\limits_{x \to -2} f(x) =$

24. $\lim\limits_{x \to 1} f(x) =$

25. $f(-2) =$

26. $\lim\limits_{x \to -3} f(x) =$

27. $f(3) =$
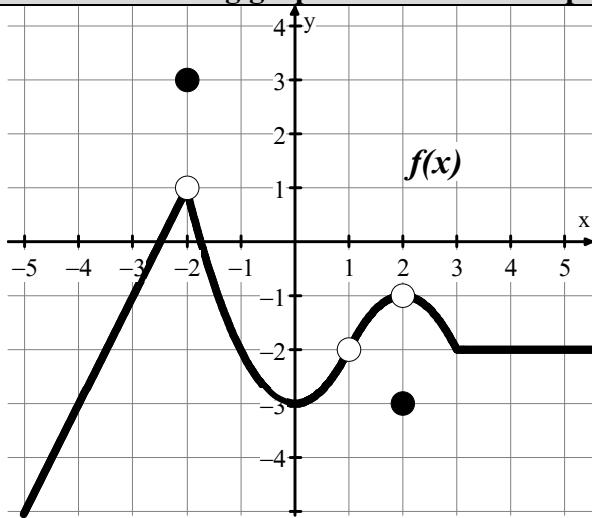
28. $\lim_{x \to -2} f(x) =$

29. $\lim_{x \to 1} f(x) =$

30. $\lim_{x \to 2} f(x) =$

31. $f(-2) =$

32. $f(1) =$

33. $\lim_{x \to 0} f(x) =$

34. $\lim_{x \to -4} f(x) =$

35. $f(2) =$

1.2 Defining Limits

Test Prep

36. Let f be a function that is defined for all real numbers x. Of the following, which is the best interpretation of the statement $\lim_{x \to 4} f(x) = 8$.

(A) The value of the function f at $x = 4$ is 8.

(B) The value of the function f at $x = 8$ is 4.

(C) As x approaches 4, the values of $f(x)$ approach 8.

(D) As x approaches 8, the values of $f(x)$ approach 4.

37. Let f be a function that is defined for all real numbers x. Of the following, which is the best interpretation of the statement $\lim_{x \to -1} f(x) = 2$.

(A) As x approaches 2, the values of $f(x)$ approach -1

(B) The value of the function f at $x = -1$ is 2.

(C) The value of the function f at $x = 2$ is -1.

(D) As x approaches -1, the values of $f(x)$ approach 2.

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