MATHEMATICS · GRADES 10-12

Finding function values from graphs

Difficulty level: Advanced

Mathematics: Grades 10-12

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Overview of the concept

This is how you read an answer straight off a graph. The temperature at noon from a weather chart, or the height of a plant after ten days from a growth chart, can be read directly without doing any maths. You find the input on one axis, go up to the curve, and across to the answer. It is the fastest way to get a value when the graph is already drawn.



Rule

Function value from a graph: f(a) is the y value of the point on the graph where x = a.

Find a on the horizontal axis, go up to the graph, then read across to the y-axis.

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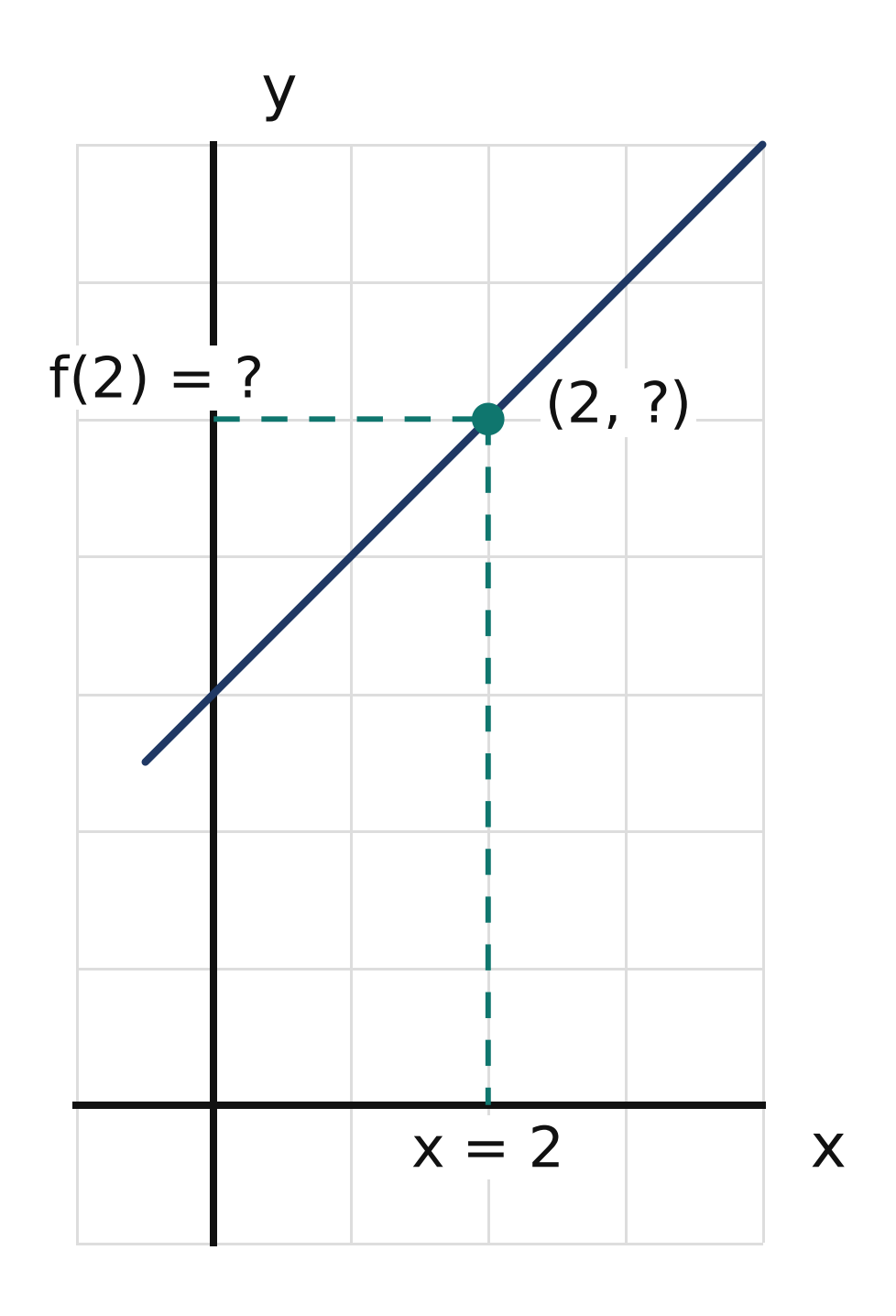
Worked examples

EXAMPLE 1

Q A graph passes through (2, 5). What is f(2)?



SOLUTION

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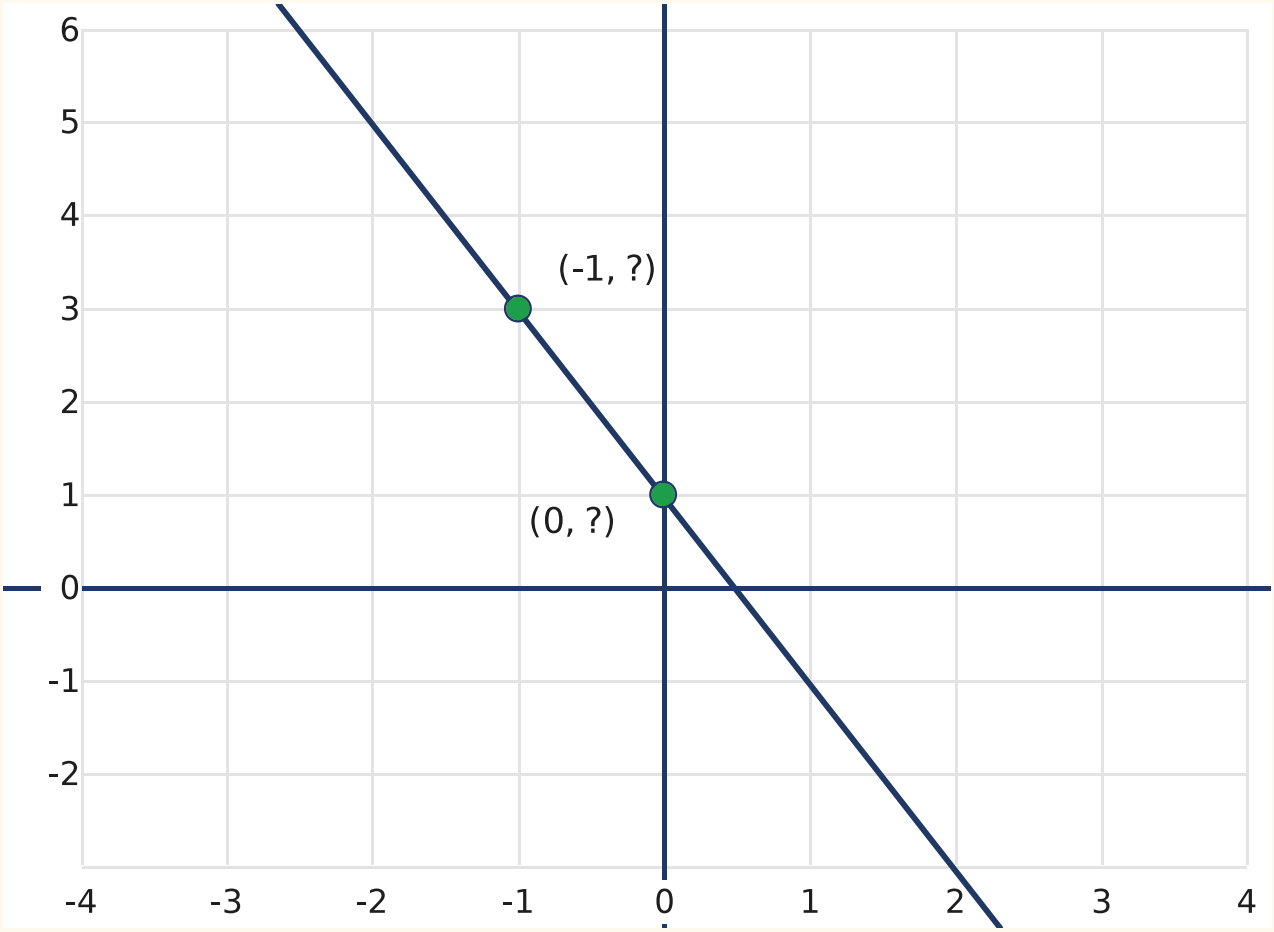
Find x = 2 on the horizontal axis.

Go up to the graph: the point there is (2, 5)

Read the y-value: f(2) = 5

EXAMPLE 2

Q A graph passes through (-1, 3) and (0, 1). What are f(-1) and f(0)?



SOLUTION

At x = -1, the point is (-1, 3), so f(-1) = 3

At x = 0, the point is (0, 1), so f(0) = 1

Write both answers: f(-1) = 3 and f(0) = 1

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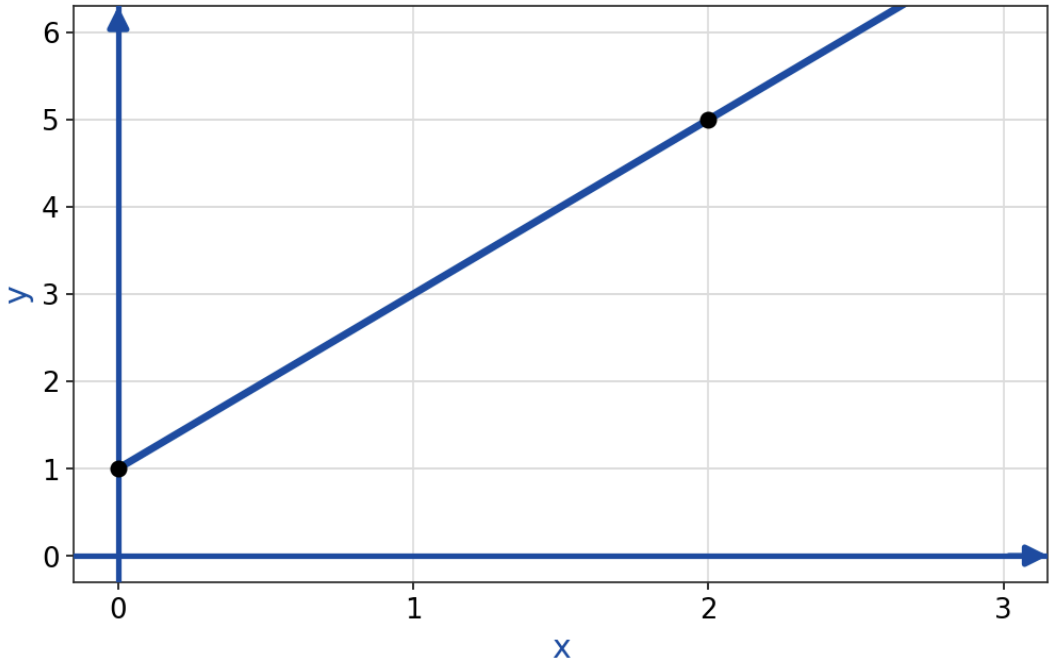
Practice questions

1 What is f(3)?



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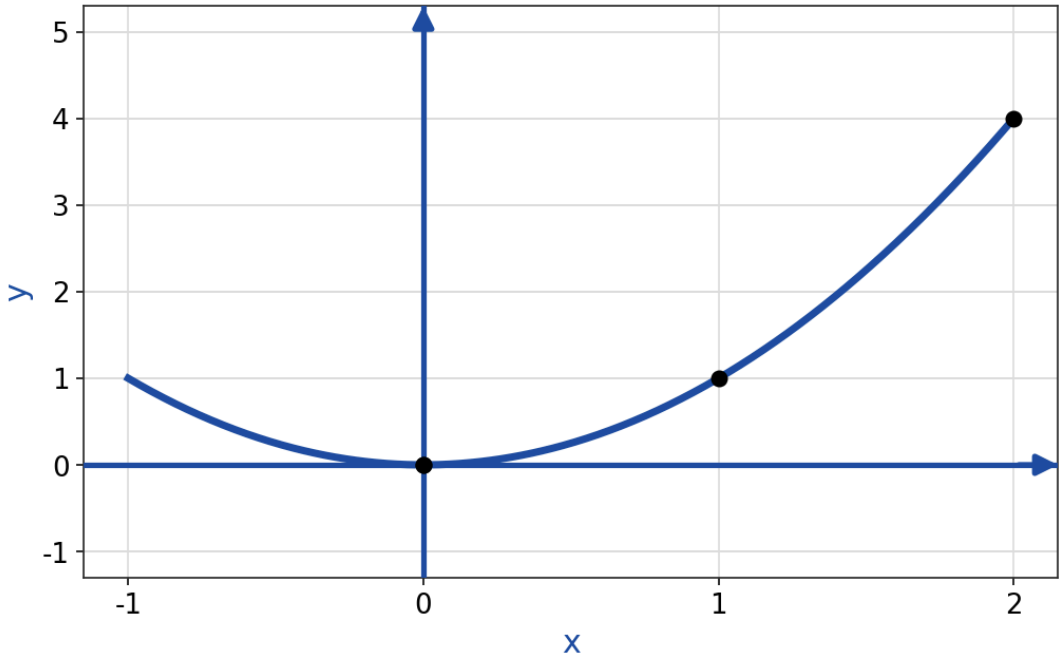
2

What is f(2)?



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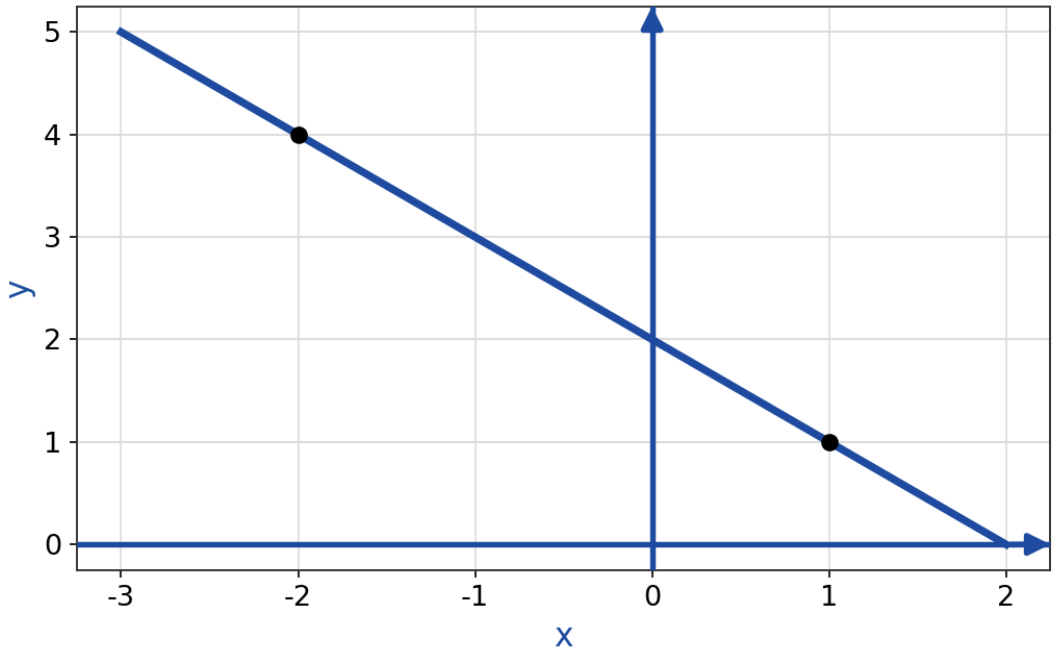
3 What are f(-2) and f(1)?



A f(-2) = 1 and f(1) = 4

B f(-2) = 4 and f(1) = 1

C f(-2) = 4 and f(1) = -1

D f(-2) = -4 and f(1) = 1

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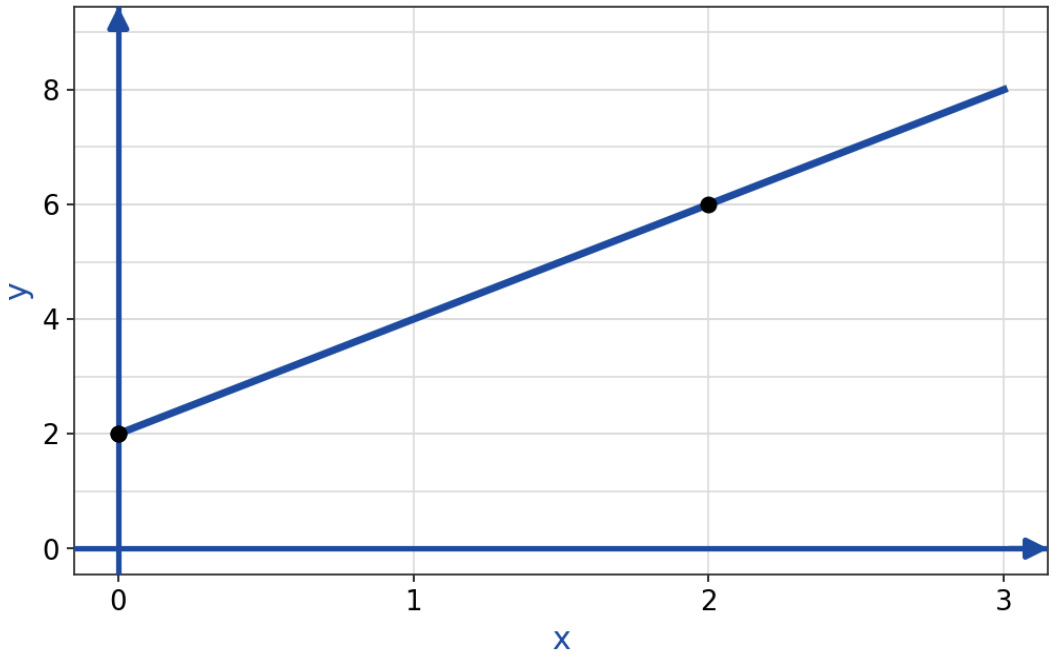
4

For what value of x is f(x) = 6?



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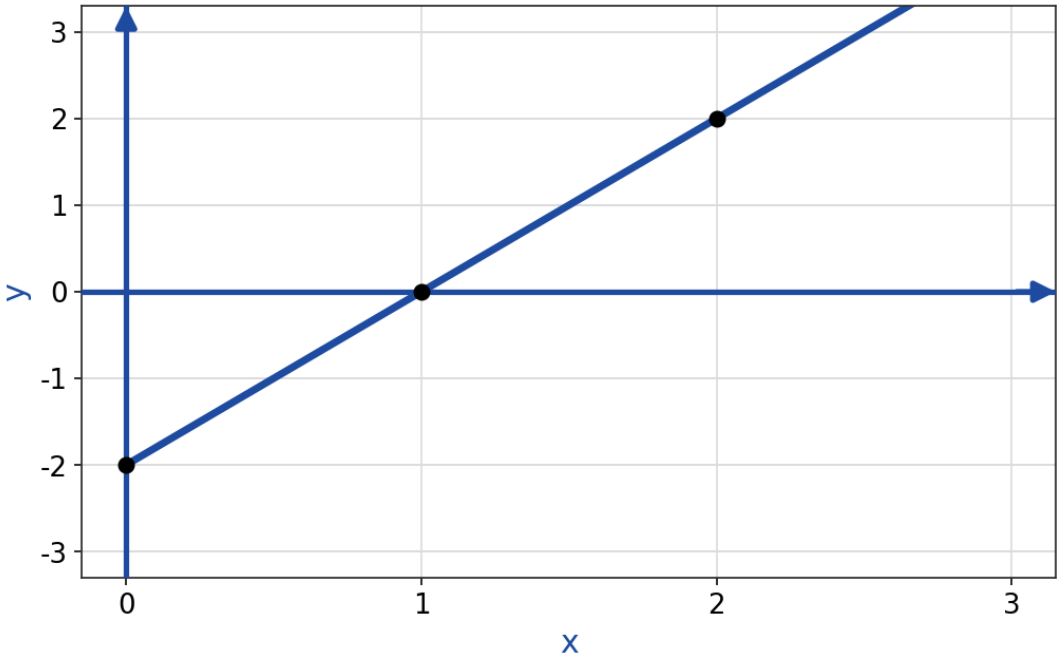
5 What are f(0) and f(2)?



A f(0) = 2 and f(2) = -2

B f(0) = -2 and f(2) = -2

C f(0) = 0 and f(2) = 2

D f(0) = -2 and f(2) = 2

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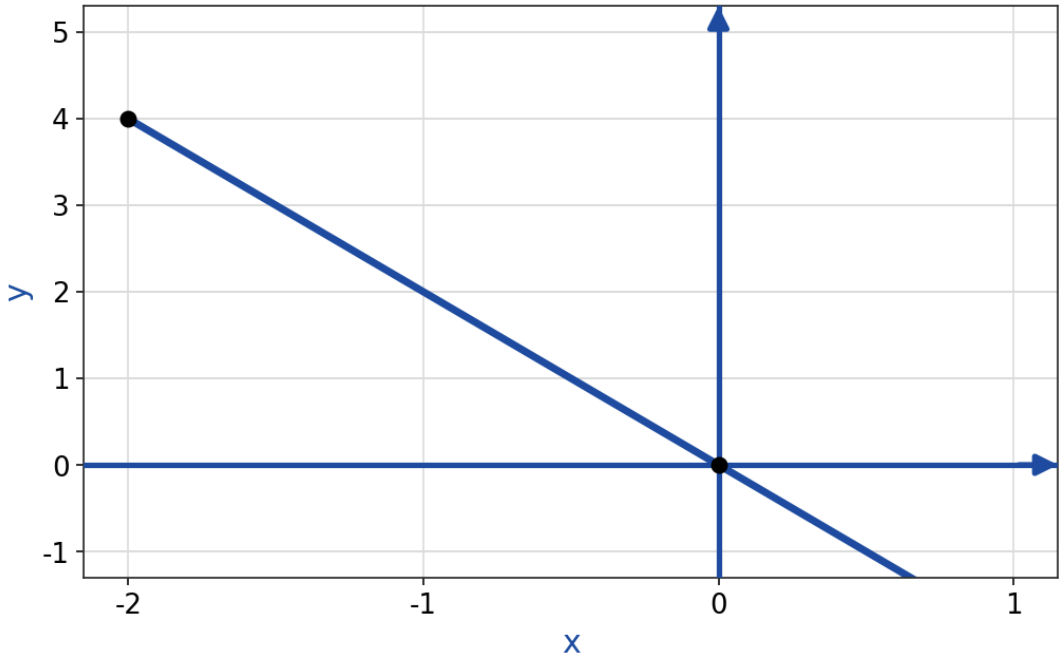
6

What is f(-2)?



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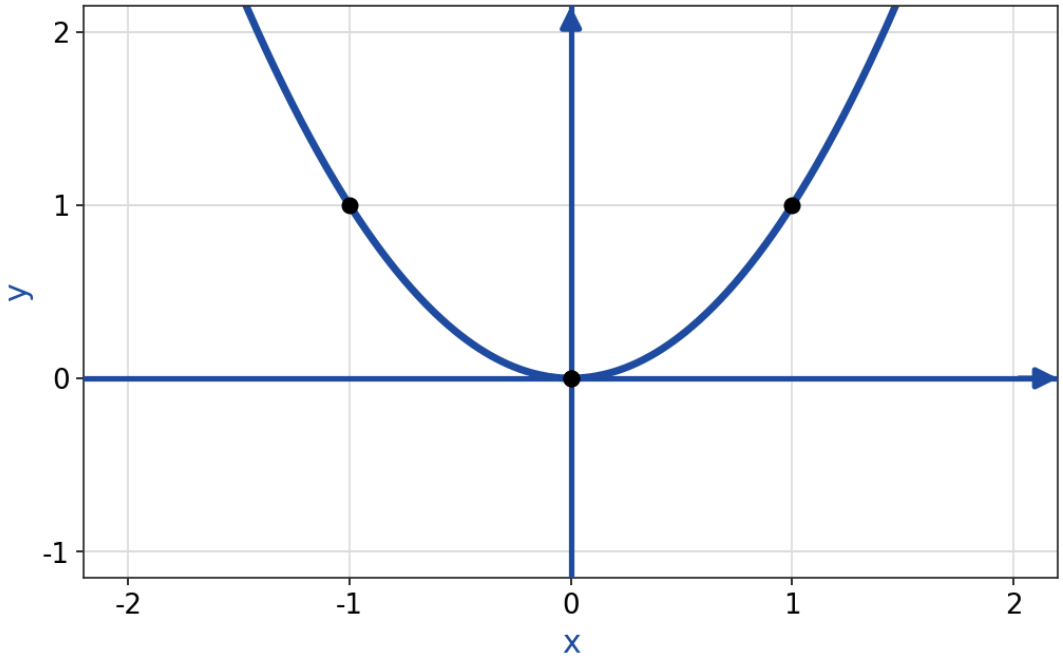
7

What is f(-1)?



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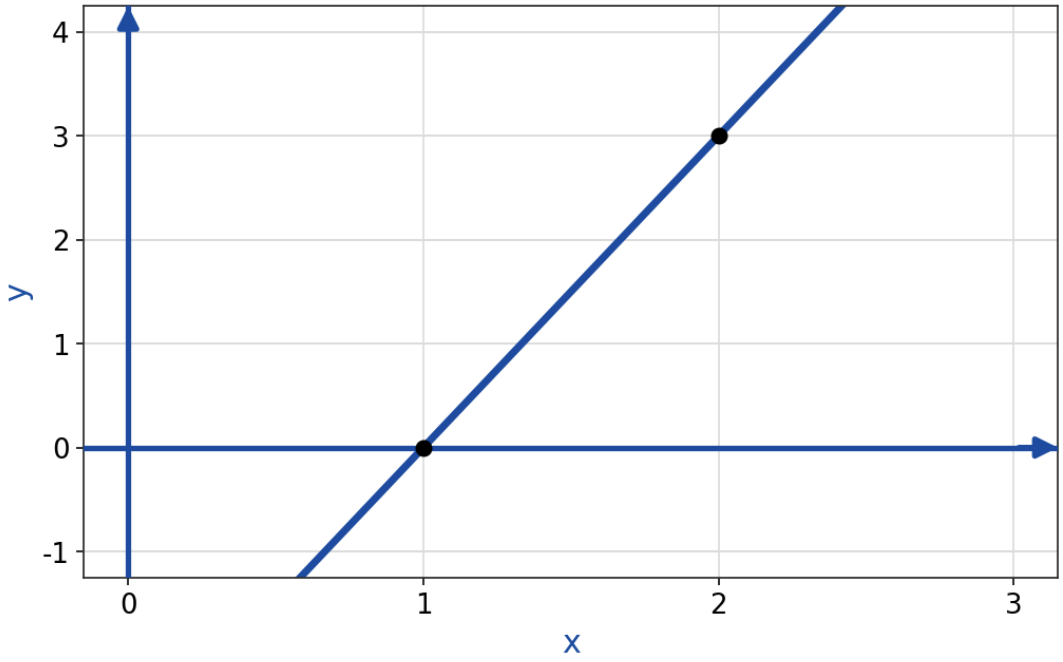
8 What are f(1) and f(2)?



A f(1) = 0 and f(2) = 3

B f(1) = 3 and f(2) = 0

C f(1) = 0 and f(2) = 0

D f(1) = 1 and f(2) = 3

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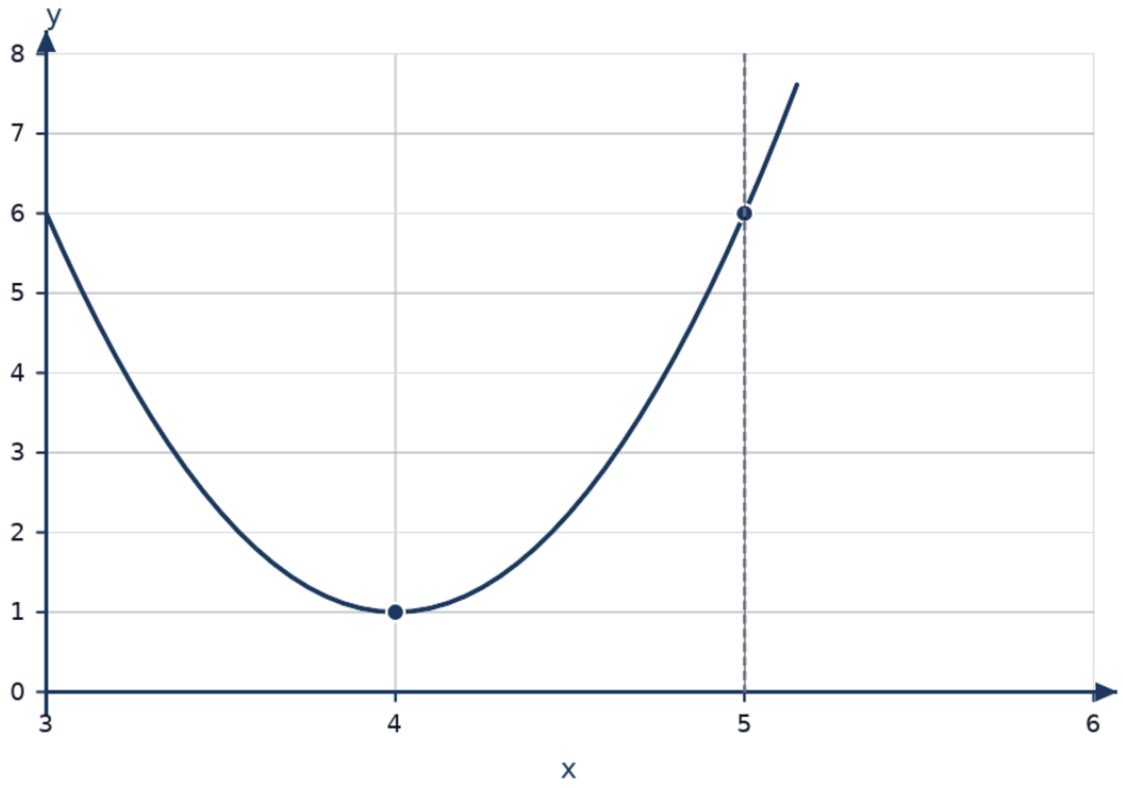
9 For what value of x is f(x) = 1?



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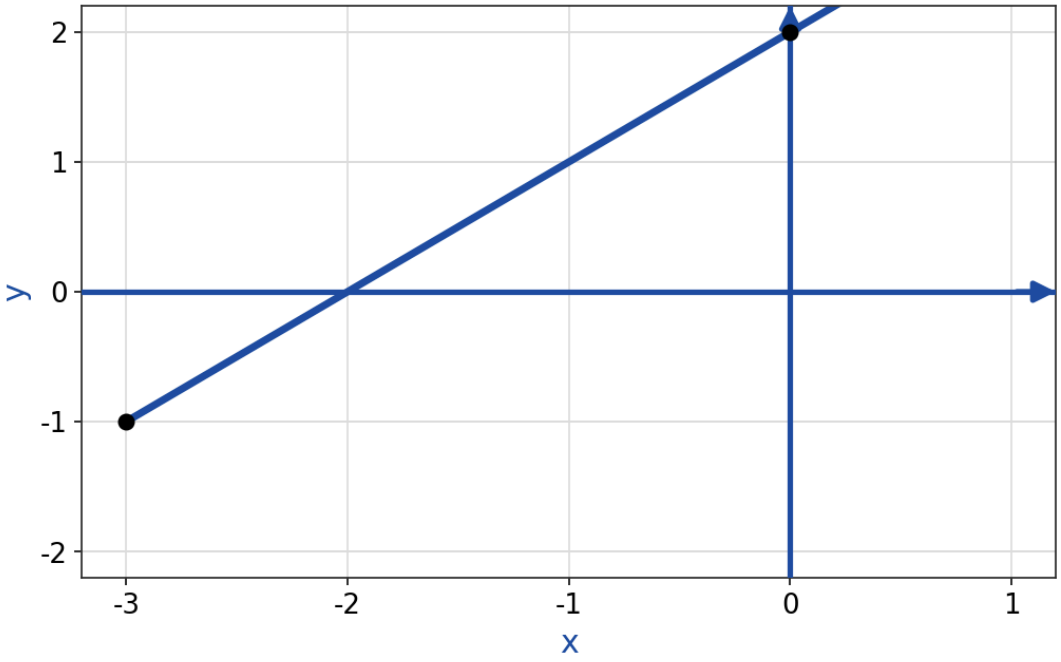
10

What are f(-3) and f(0)?



A f(-3) = 2 and f(0) = -1

B f(-3) = -1 and f(0) = -1

C f(-3) = -1 and f(0) = 2

D f(-3) = 1 and f(0) = 2

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ANSWER KEY

1. 7

2. 4

3. f(-2) = 4 and f(1) = 1

4. 2

5. f(0) = -2 and f(2) = 2

6. 4

7. 1

8. f(1) = 0 and f(2) = 3

9. 4

10. f(-3) = -1 and f(0) = 2

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