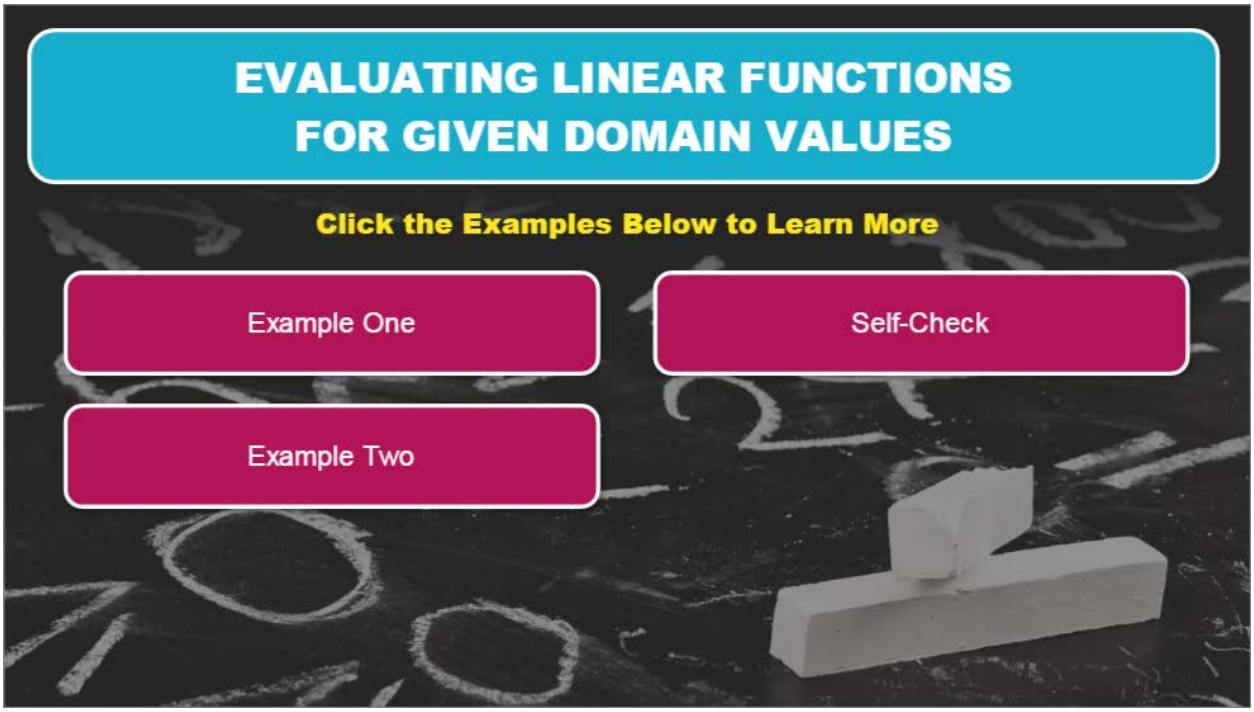
Module 10: Linear and Quadratic Function Families

Topic 3 Content: Evaluating Linear Functions For Given Domain Values Notes

Introduction

Hi there! I'm so glad you could join me for this lesson in Algebra I, where you will learn how to evaluate linear functions for given domain values.

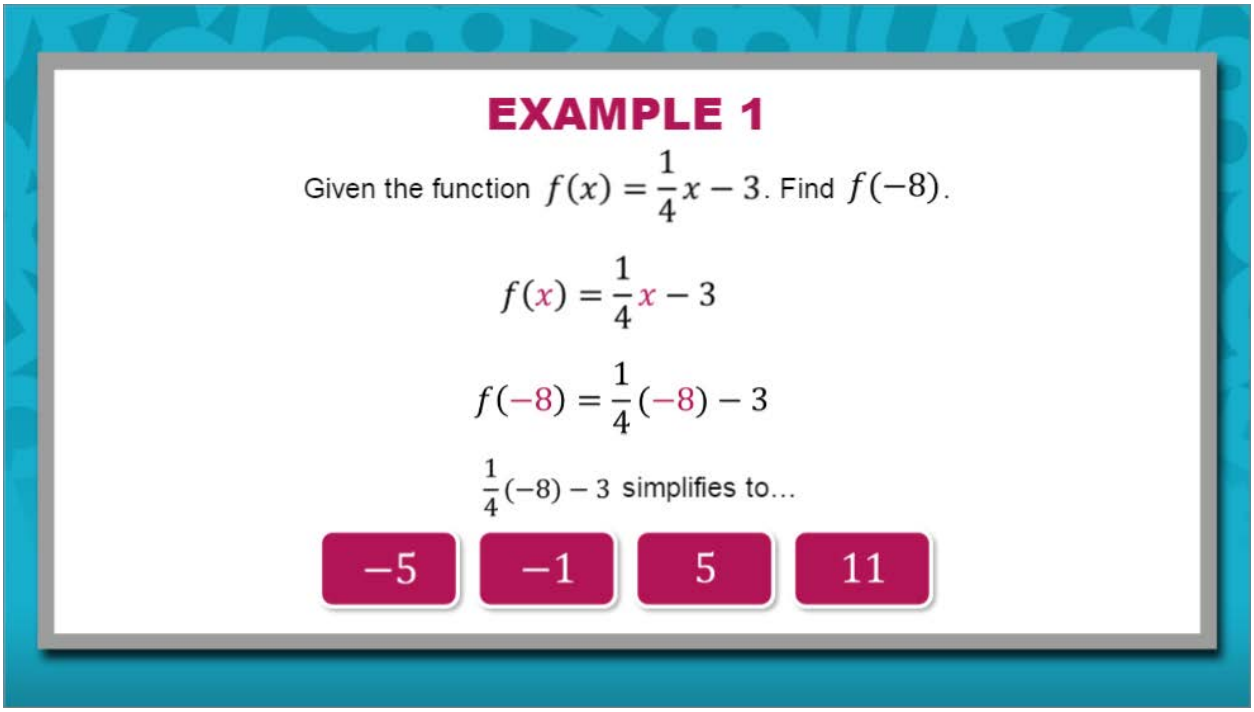
Evaluating Linear Functions For Given Domain Values



Click the examples below to learn more.

- Example One
- Example Two
- Self-Check

Example One



Given the function $f(x) = \frac{1}{4}x - 3$. Find $f(-8)$.

$$f(x) = \frac{1}{4}x - 3$$

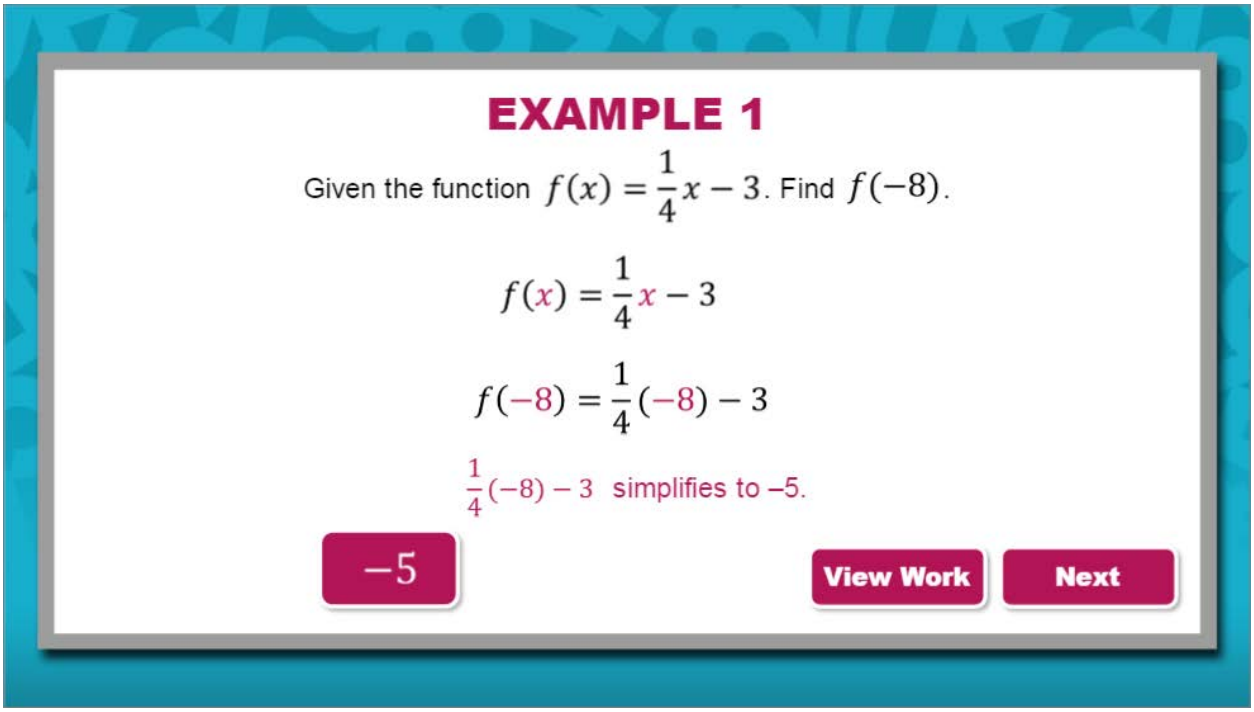
$$f(-8) = \frac{1}{4}(-8) - 3$$

To find $f(-8)$, substitute -8 for x. Then, simplify the expression on the right side of the equation

$\frac{1}{4}(-8) - 3$ simplifies to...

A) -5
B) -1
C) 5
D) 11

Example One (continued)



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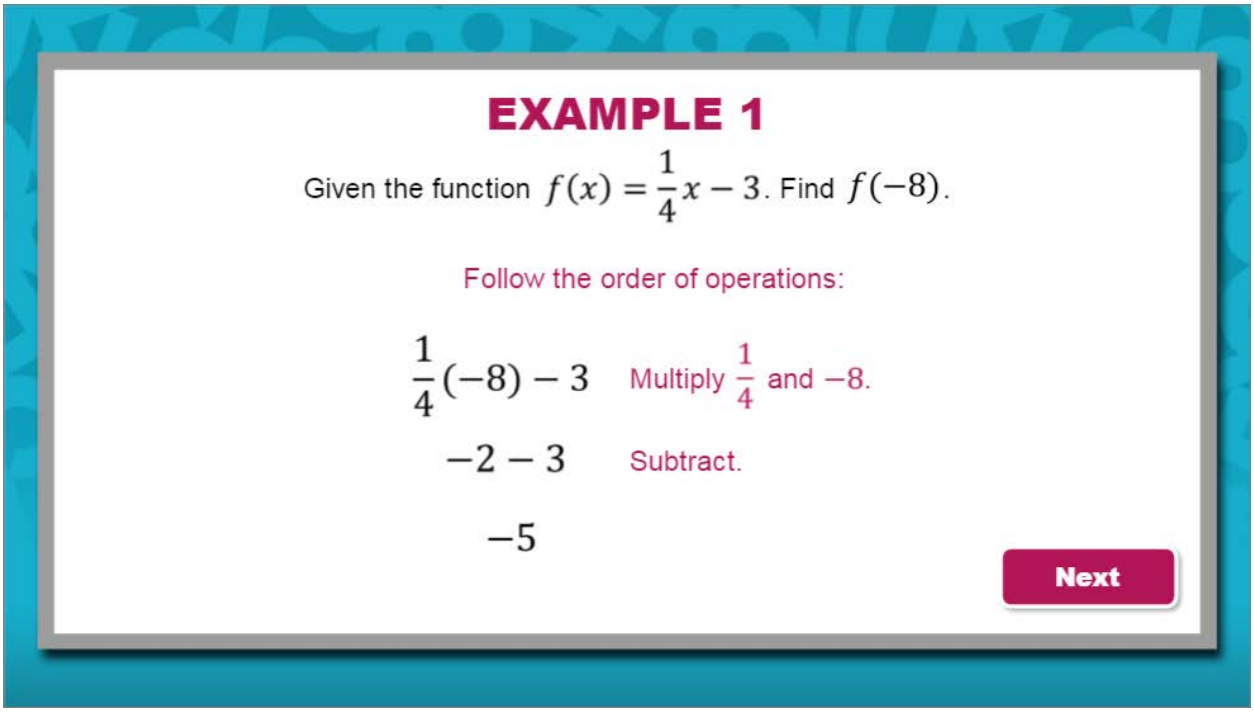
$$f(x) = \frac{1}{4}x - 3$$

$$f(-8) = \frac{1}{4}(-8) - 3$$

$\frac{1}{4}(-8) - 3$ simplifies to -5.

Example One (continued)



Given the function $f(x) = \frac{1}{4}x - 3$. Find $f(-8)$.

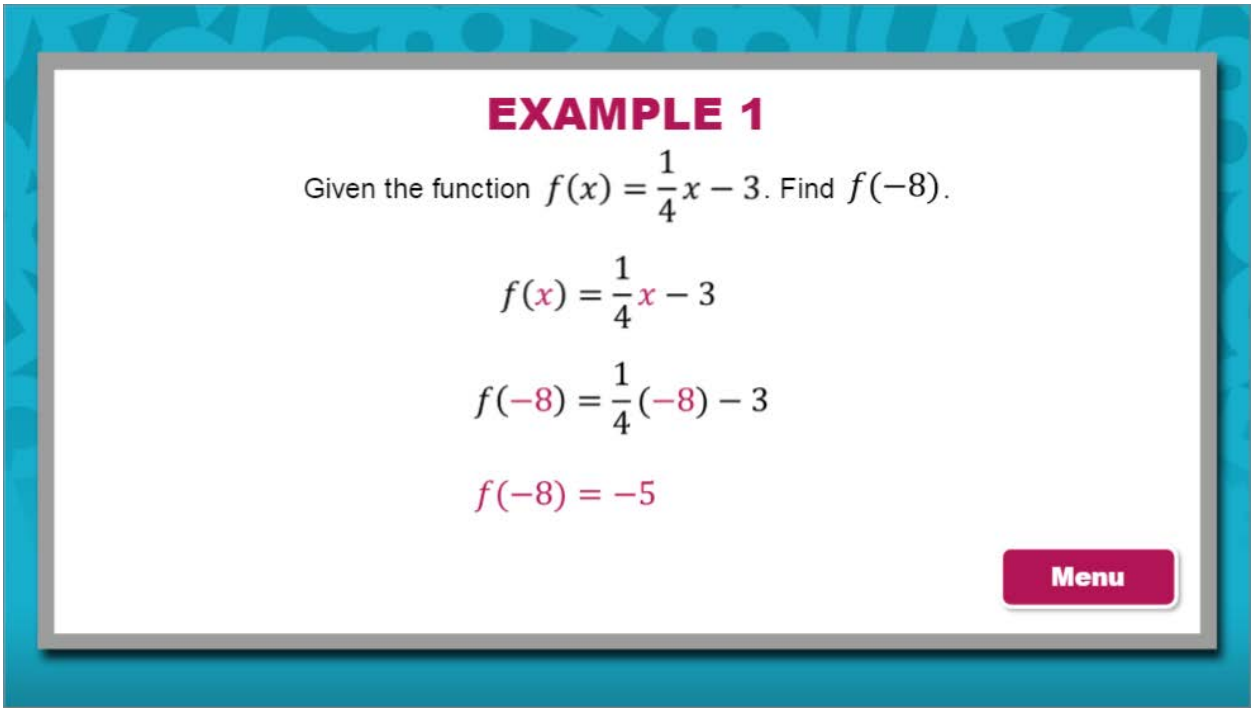
Follow the order of operations:

$\frac{1}{4}(-8) - 3$ Multiply $\frac{1}{4}$ and -8

$-2 - 3$ Subtract

-5

Example One (continued)



Given the function $f(x) = \frac{1}{4}x - 3$. Find $f(-8)$.

$$f(x) = \frac{1}{4}x - 3$$

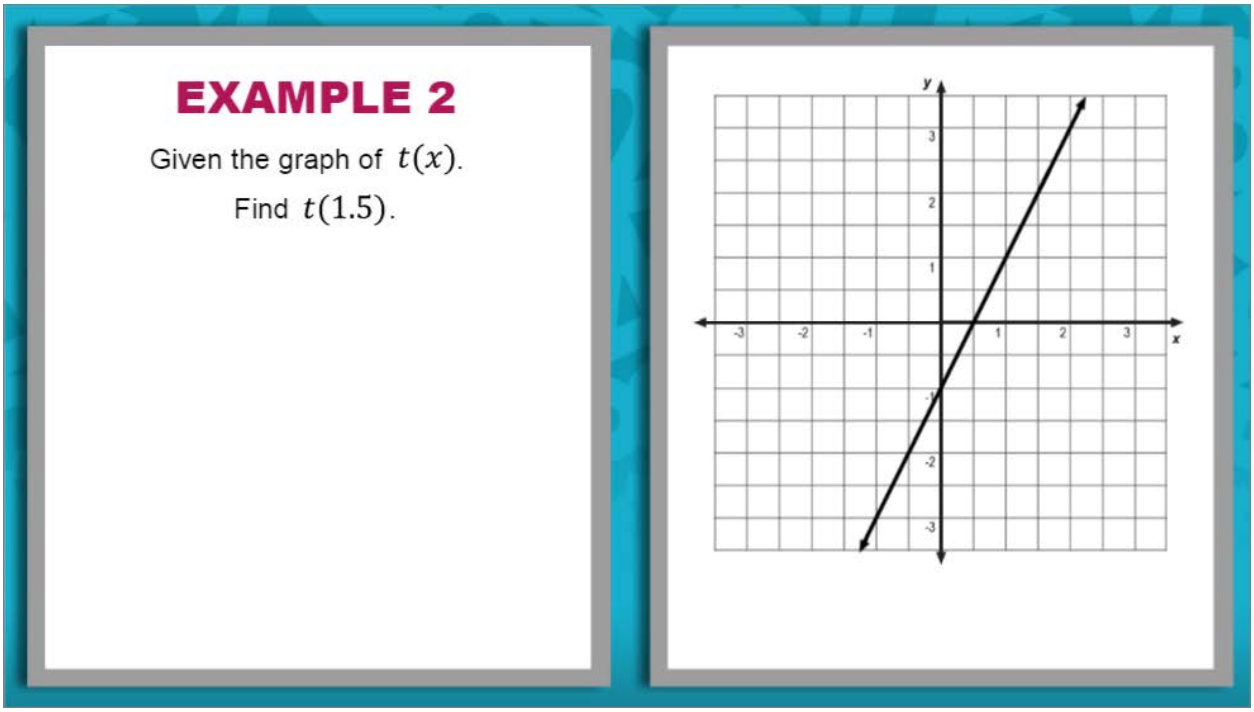
$$f(-8) = \tfrac{1}{4}(-8) - 3$$

$$f(-8) = -5$$

Your work is complete.

After simplifying the expression you find that $f(-8) = -5$.

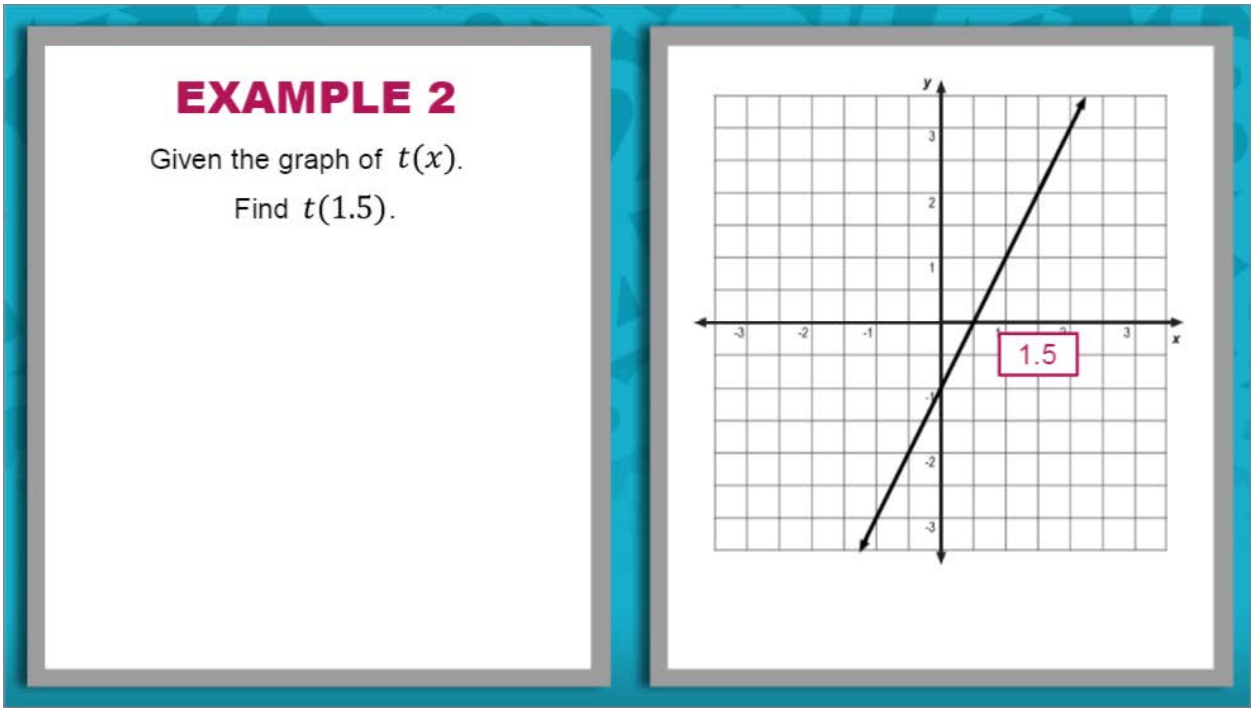
Example Two



Given the graph of $t(x)$. Find $t(1.5)$.

In this example, you are not given an equation to represent the function t. Instead, you given the graph. To find the value of the function when $x = 1.5$, you must determine the output that corresponds to the input value of 1.5.

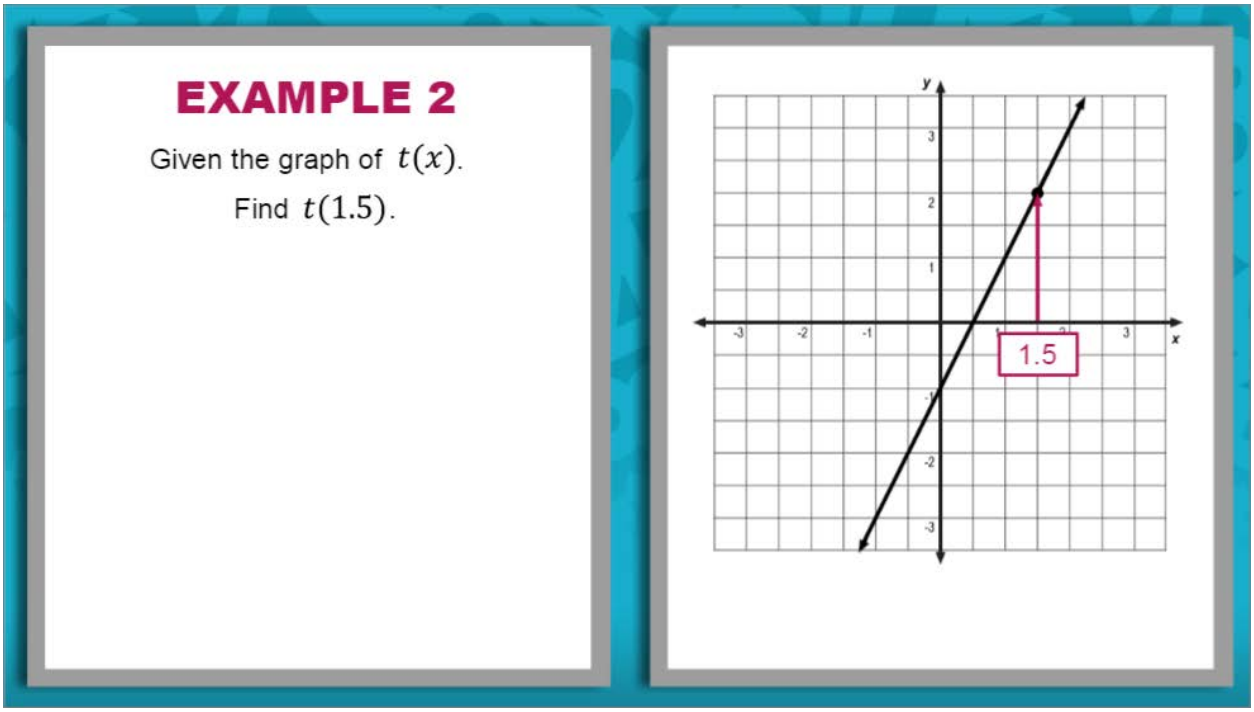
Example Two (continued)



Given the graph of $t(x)$. Find $t(1.5)$.

First, locate 1.5 on the x-axis.

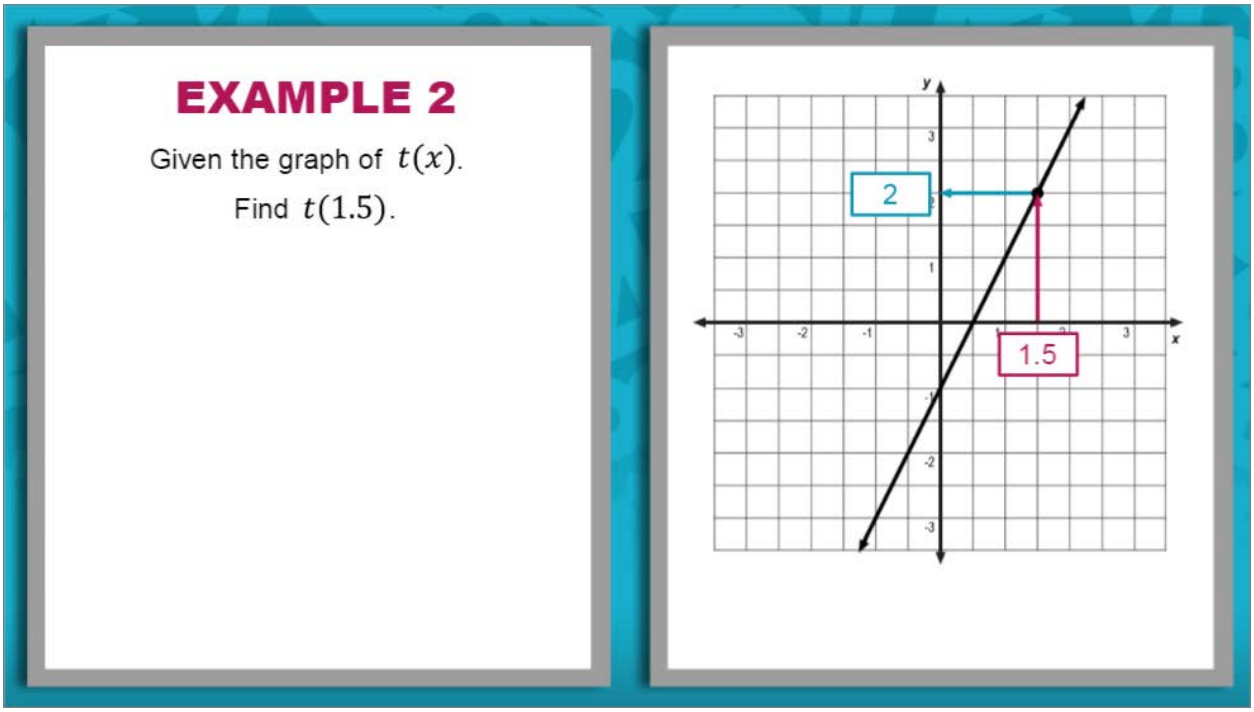
Example Two (continued)



Given the graph of $t(x)$. Find $t(1.5)$.

Next, find the point on the graph that has an input value of 1.5.

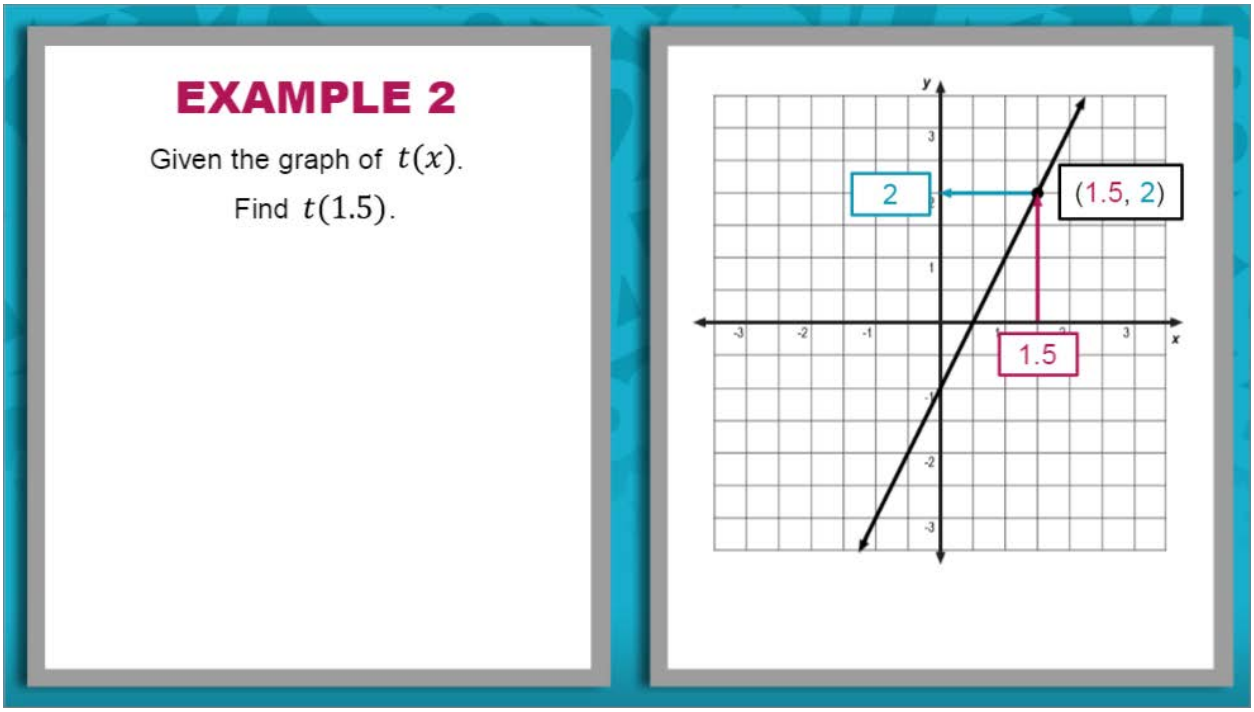
Example Two (continued)



Given the graph of $t(x)$. Find $t(1.5)$.

Then, determine the corresponding output value.

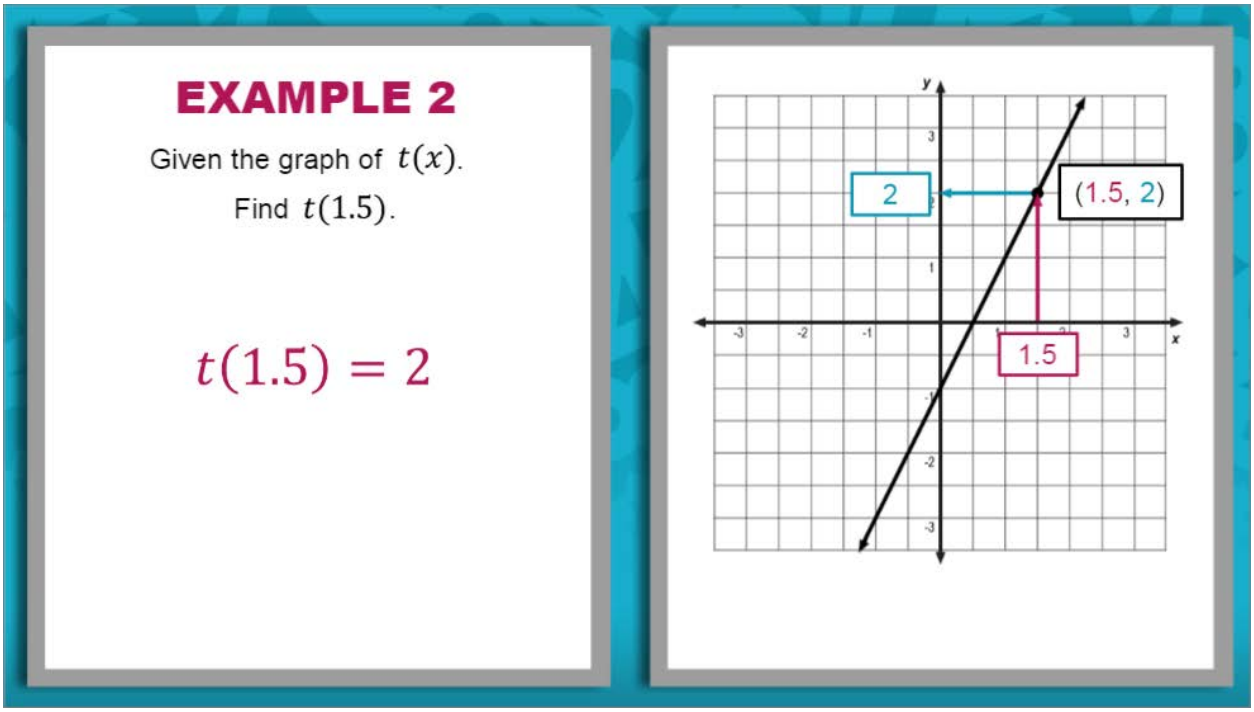
Example Two (continued)



Given the graph of $t(x)$. Find $t(1.5)$.

For this function, an input of 1.5 results in an output of 2. Notice the point on the line (1.5, 2).

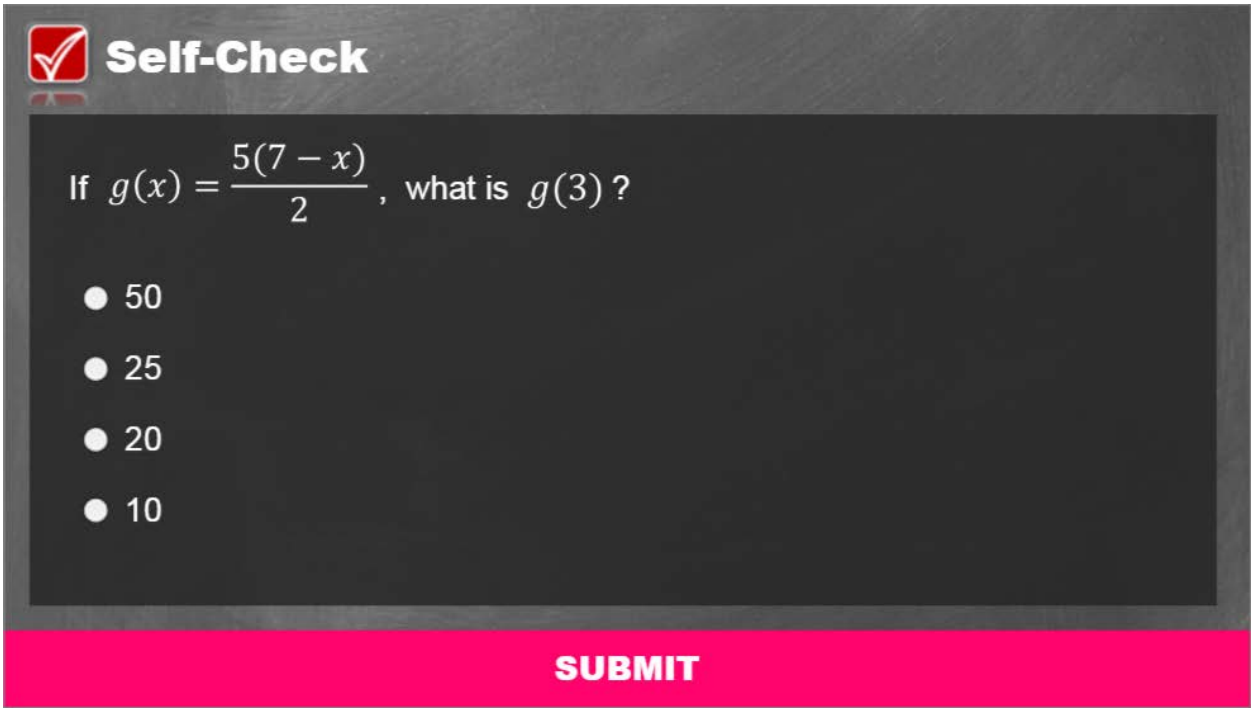
Example Two (continued)



Given the graph of $t(x)$. Find $t(1.5)$.

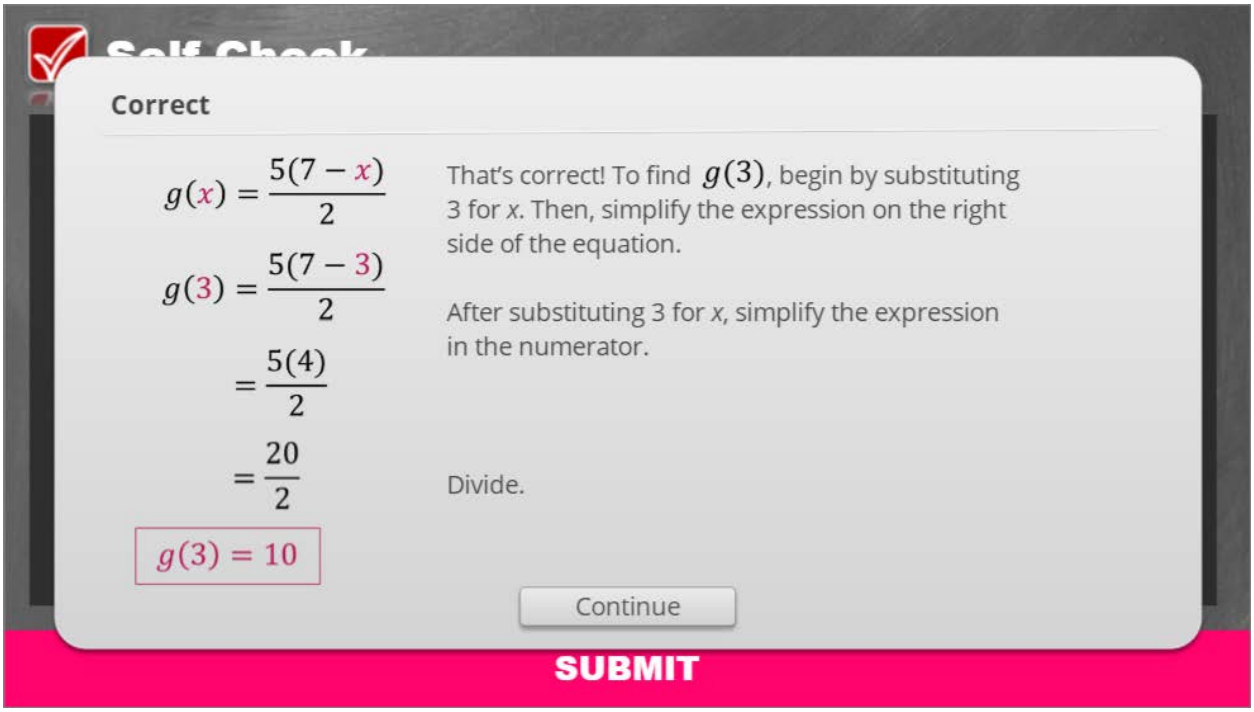
Your work is complete. $t(1.5) = 2$.

Self-Check 1



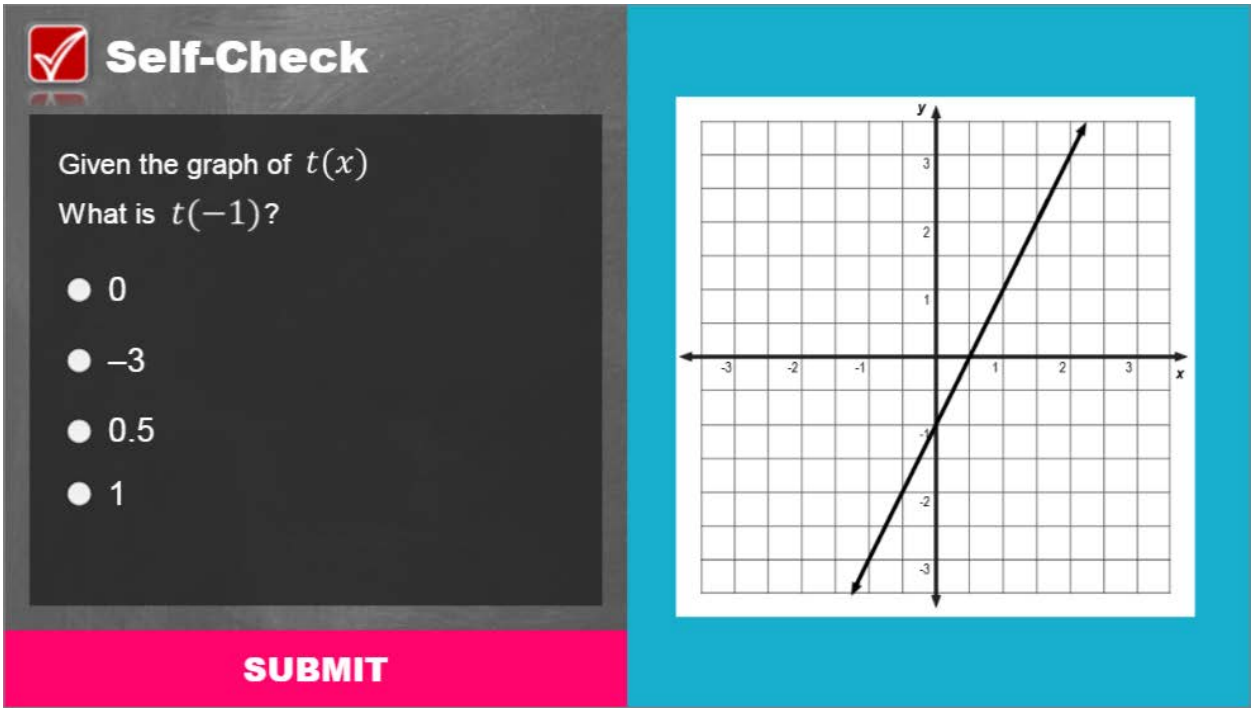
Solve the problem in the image above to check your understanding of the content.

Self-Check 1: Answer



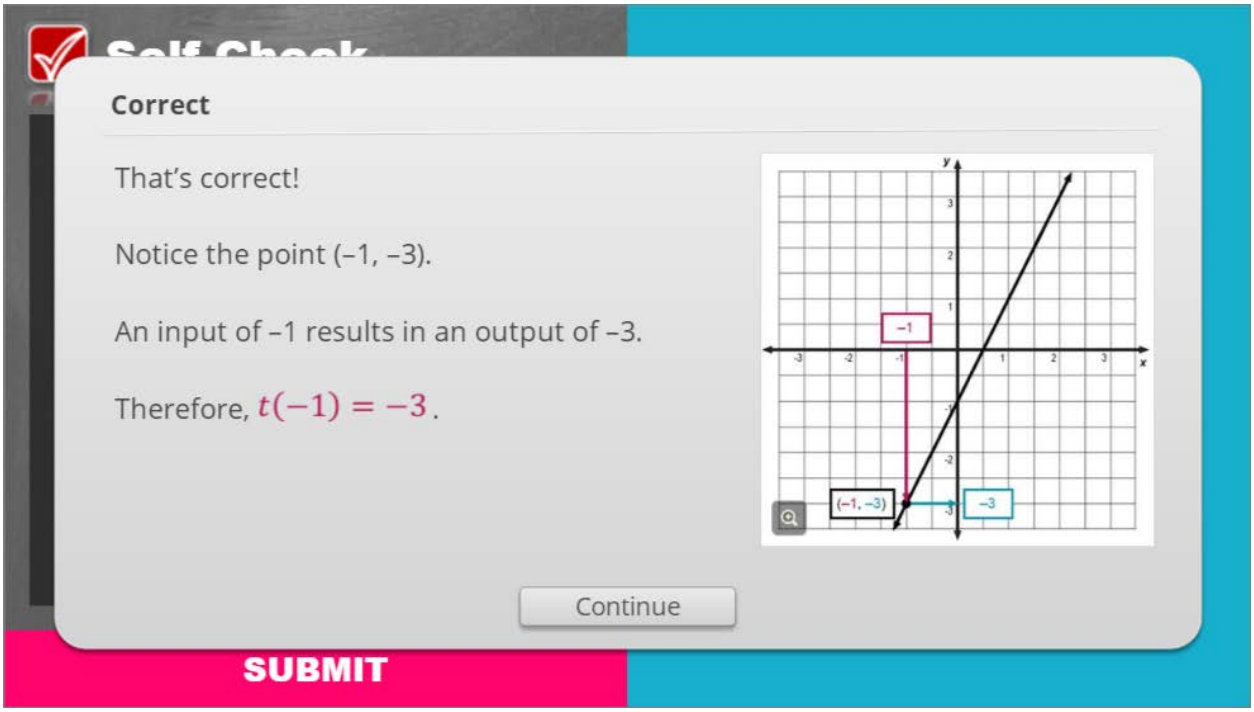
For your reference, the image above shows the correct solution to the self-check problem.

Self-Check 2



Solve the problem in the image above to check your understanding of the content.

Self-Check 2: Answer



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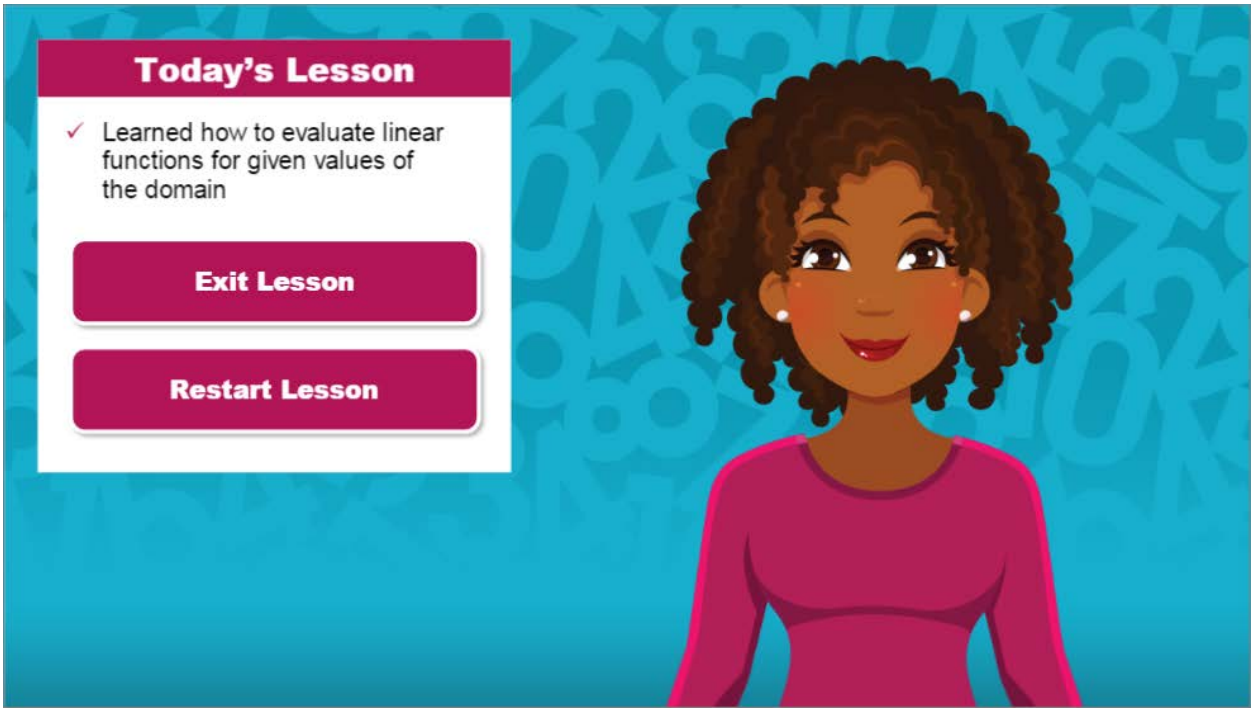
Conclusion



You have reached the conclusion of this lesson where you learned how to evaluate linear functions for given values of the domain.