

Module 10: Linear and Quadratic Function Families

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

Introduction

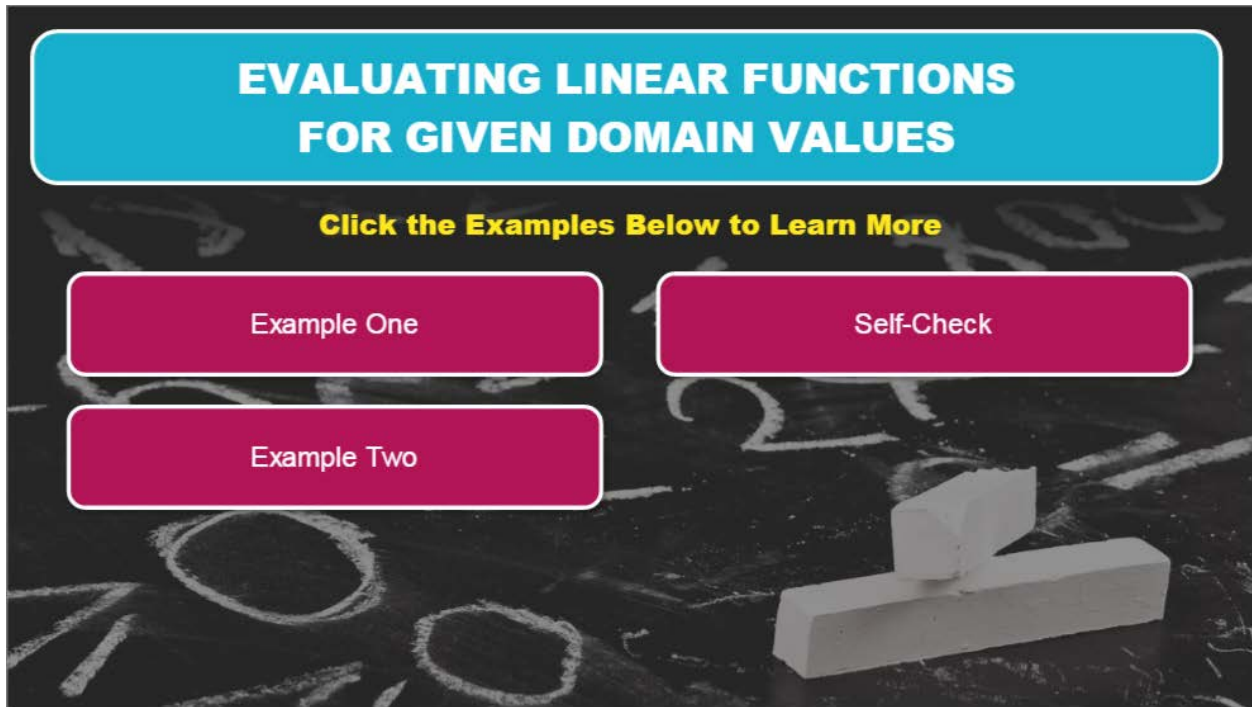


Today's Lesson

- You will learn how to evaluate linear functions for given domain values.

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.

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Evaluating Linear Functions For Given Domain Values



The graphic features a dark background with faint chalkboard-style drawings of circles and arrows. At the top, a blue rounded rectangle contains the title "EVALUATING LINEAR FUNCTIONS FOR GIVEN DOMAIN VALUES" in white, bold, uppercase letters. Below this, a yellow text prompt reads "Click the Examples Below to Learn More". Three pink rounded rectangular buttons are arranged: "Example One" and "Self-Check" are in the top row, and "Example Two" is centered below them. In the bottom right corner, there is a 3D rendering of a white rectangular block with a smaller white cube-like shape on top of it.

Click the examples below to learn more.

- Example One
- Example Two
- Self-Check

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Example One

EXAMPLE 1

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

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

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

-5 -1 5 11

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

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Example One (continued)

EXAMPLE 1

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

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

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

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

-5

View Work

Next

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

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

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

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

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Example One (continued)

EXAMPLE 1

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

Follow the order of operations:

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

$$-2 - 3 \quad \text{Subtract.}$$

$$-5$$

Next

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

Follow the order of operations:

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

$$-2 - 3 \quad \text{Subtract}$$

$$-5$$

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Example One (continued)

EXAMPLE 1

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

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

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

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

Menu

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

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

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

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

Your work is complete.

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

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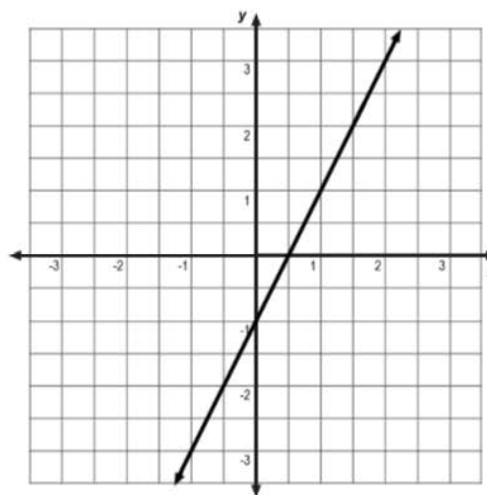
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Example Two

EXAMPLE 2

Given the graph of $t(x)$.

Find $t(1.5)$.



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 are 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.

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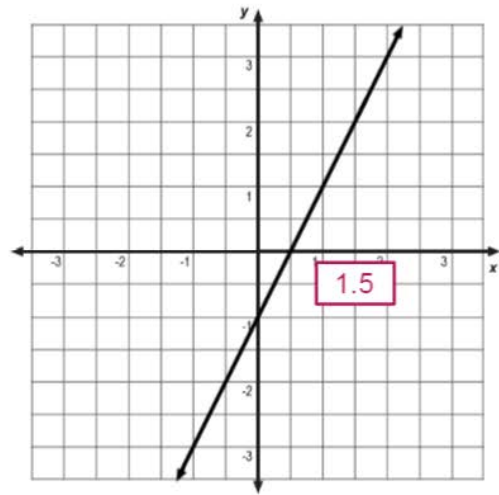
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Example Two (continued)

EXAMPLE 2

Given the graph of $t(x)$.

Find $t(1.5)$.



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

First, locate 1.5 on the x -axis.

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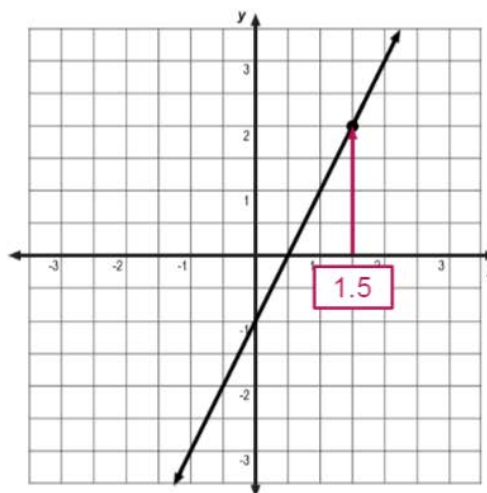
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Example Two (continued)

EXAMPLE 2

Given the graph of $t(x)$.

Find $t(1.5)$.



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.

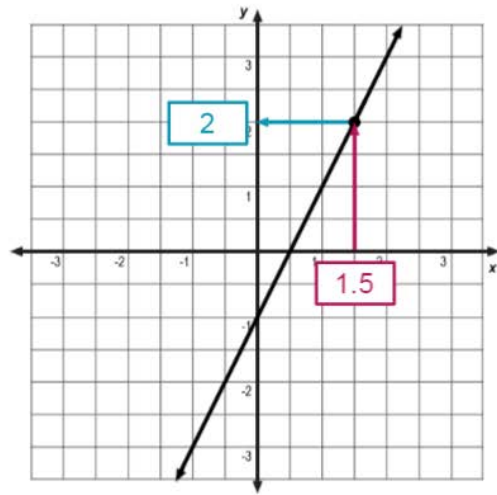
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Example Two (continued)

EXAMPLE 2

Given the graph of $t(x)$.

Find $t(1.5)$.



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

Then, determine the corresponding output value.

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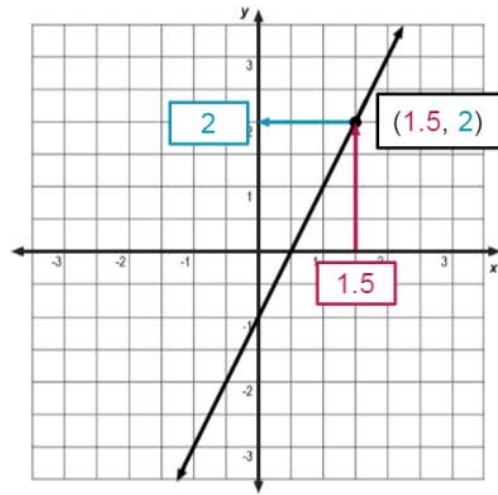
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Example Two (continued)

EXAMPLE 2

Given the graph of $t(x)$.

Find $t(1.5)$.



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 $(1.5, 2)$.

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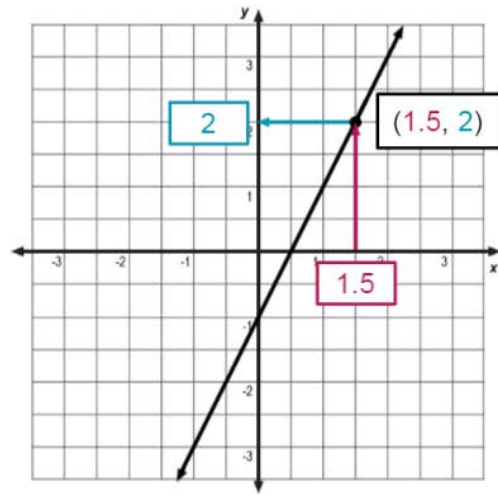
Example Two (continued)

EXAMPLE 2

Given the graph of $t(x)$.

Find $t(1.5)$.

$$t(1.5) = 2$$



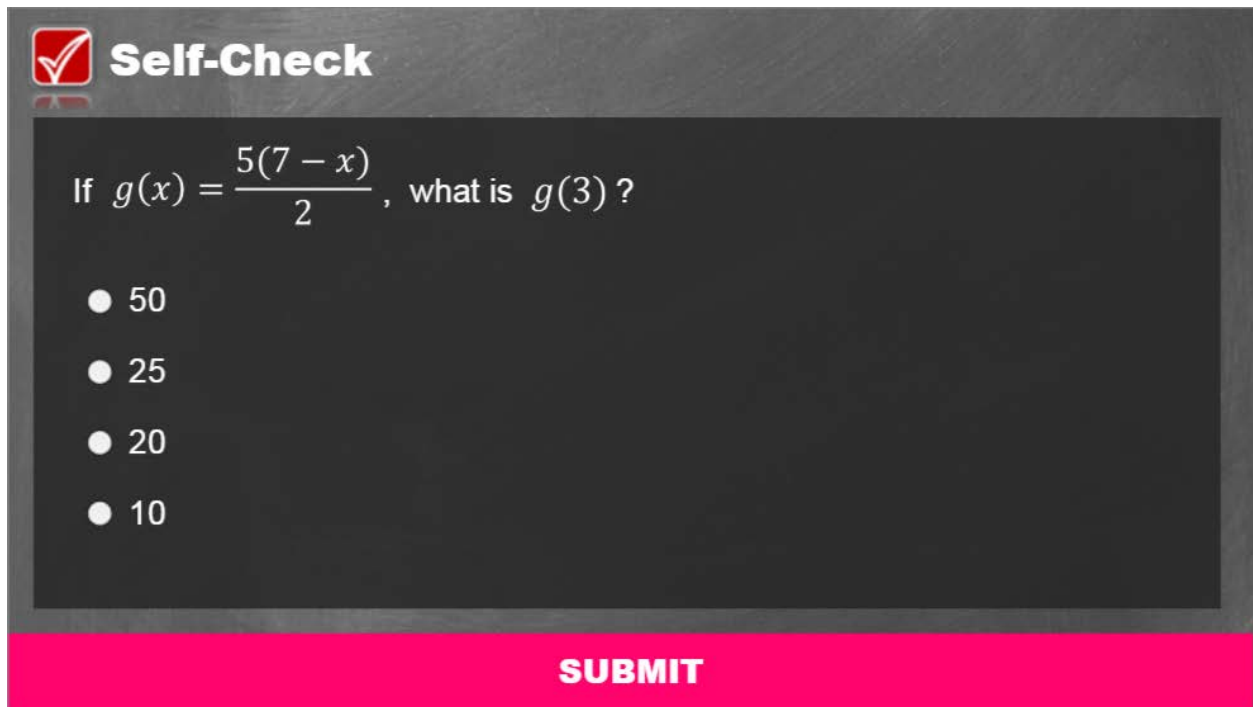
Given the graph of $t(x)$. Find $t(1.5)$.

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

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Self-Check 1

A digital interface for a self-check question. It features a dark grey background with a red checkmark icon and the text "Self-Check" in white. Below this, the question is displayed in white text: "If $g(x) = \frac{5(7-x)}{2}$, what is $g(3)$?" Four radio button options are listed: 50, 25, 20, and 10. At the bottom, there is a bright pink rectangular button with the word "SUBMIT" in white capital letters.

Self-Check

If $g(x) = \frac{5(7-x)}{2}$, what is $g(3)$?

- 50
- 25
- 20
- 10

SUBMIT

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

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Self-Check 1: Answer

Correct

$$g(x) = \frac{5(7 - x)}{2}$$

That's correct! To find $g(3)$, begin by substituting 3 for x . Then, simplify the expression on the right side of the equation.

$$g(3) = \frac{5(7 - 3)}{2}$$

After substituting 3 for x , simplify the expression in the numerator.

$$= \frac{5(4)}{2}$$

Divide.

$$= \frac{20}{2}$$

$g(3) = 10$

Continue


SUBMIT

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

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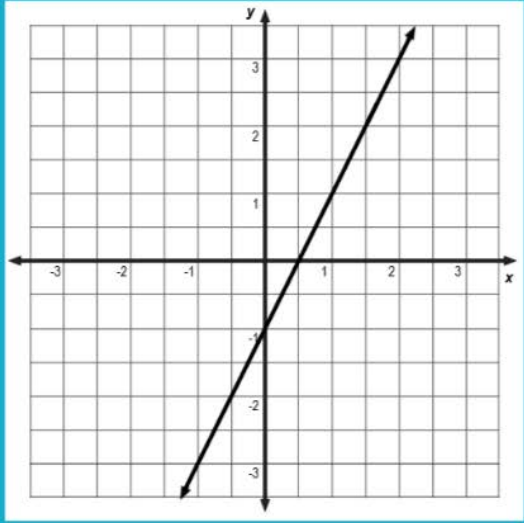
Self-Check 2

 **Self-Check**

Given the graph of $t(x)$
What is $t(-1)$?

- 0
- 3
- 0.5
- 1

SUBMIT



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

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Self-Check 2: Answer

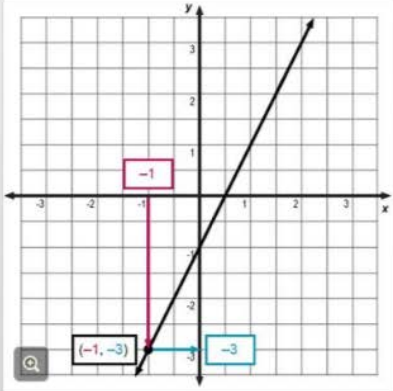
Correct

That's correct!

Notice the point $(-1, -3)$.

An input of -1 results in an output of -3 .

Therefore, $t(-1) = -3$.



Continue

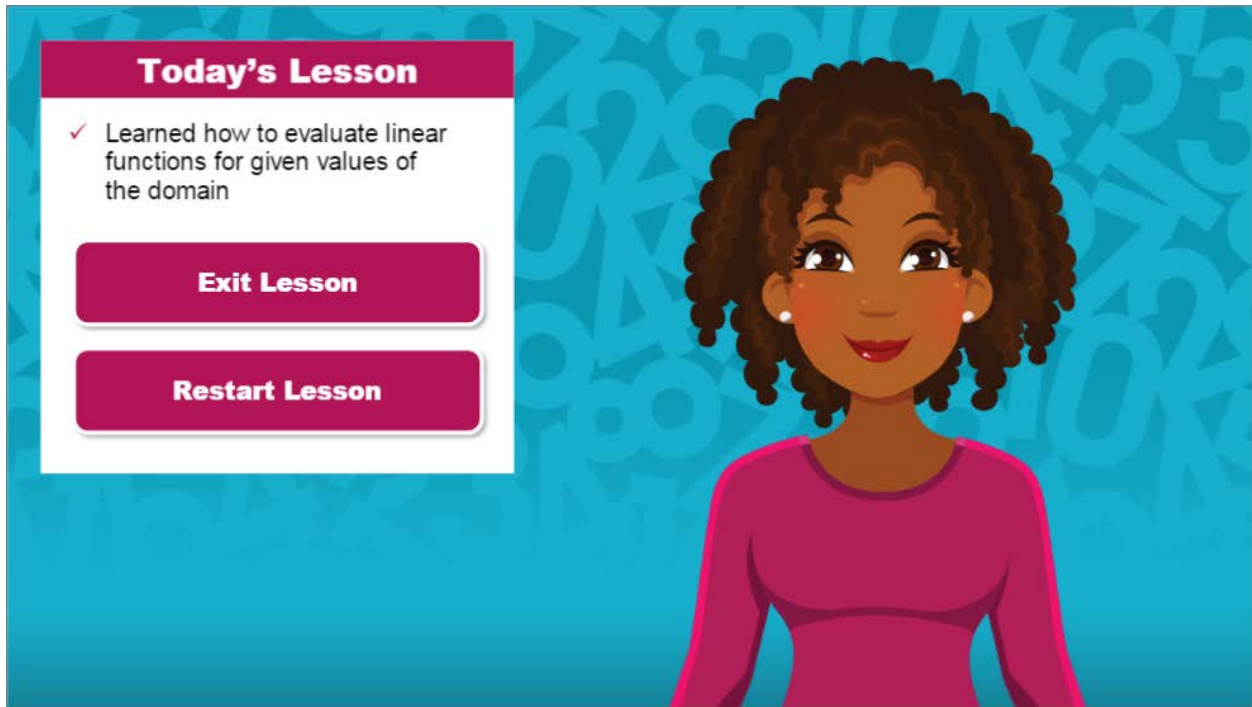
SUBMIT

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

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Conclusion



The image shows a digital interface for a lesson conclusion. On the left, a white box with a pink header titled "Today's Lesson" contains a checkmark and the text "Learned how to evaluate linear functions for given values of the domain". Below this are two pink buttons: "Exit Lesson" and "Restart Lesson". On the right, a cartoon illustration of a young woman with dark curly hair and a pink top is set against a blue background with faint mathematical symbols like pi, infinity, and numbers.

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