

Lesson 3.2.5: Unit Review

Target: I am ready for the Unit 3.2 Test.

1. Are the following scenarios examples of a function? Justify your answer.

- a. The assignment of Verizon users to Cell Phone Numbers.

- b. The assignment of Cell Phone Numbers to Verizon users.

The domain and range of this function are not specified. Let $g(x) = \sqrt{x+4}$

2. What is the domain of the function?

3. What is the range of the function?

4. Let $g(x) = 3x - 12$. Find the value of the function for the given input. Round your answers to the nearest hundredth.

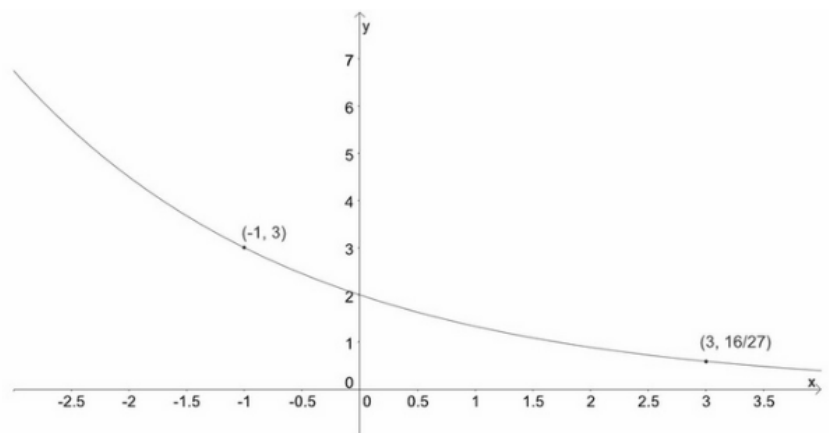
a. $g(0) =$

b. $g(-4) =$

c. $g(5.5)$

5. The graph of a function of the form $f(x) = a \cdot b^x$ is shown below. Rewrite the function for the graph.

$f(x) =$



6. A fisherman illegally introduces some fish into a lake, and they quickly propagate. The growth of the population of this new species (within a period of a few years) is modeled by $P(x) = 5 \cdot b^x$, where x is the time in weeks following the introduction and b is a positive unknown base.

- a. Exactly how many fish did the fisherman release into the lake?

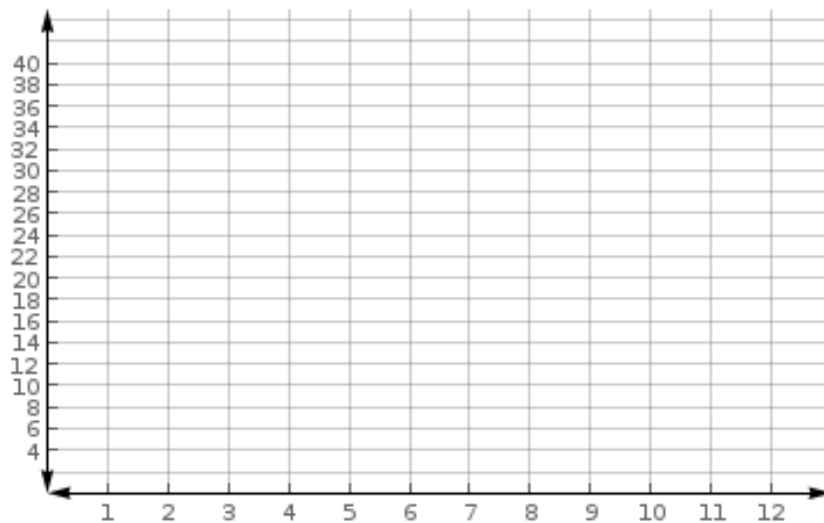
- b. Find b if you know the lake contains 33 fish after eight weeks.

- c. Instead, now suppose that $P(x) = 5 \cdot b^x$ and $b = 2$. What is the weekly growth rate in this case? What does this mean in every-day language?

7. Mr. Wiggins gives his daughter Celia two choices of payment for raking leaves:

- i. Two dollars for each bag of leaves filled,
- ii. She will be paid for the number of bags of leaves she rakes as follows: two cents for filling one bag, four cents for filling two bags, eight cents for filling three bags, and so on, with the amount doubling for each additional bag filled.

- a. Graph the two different scenarios on the same coordinate plane for up to 12 bags of leaves.



- b. If Celia rakes five bags of leaves, should she opt for payment method 1 or 2? What if she fills ten bags of leaves?

- c. How many bags of leaves would Celia have to fill before method 2 pays more than method 1?