

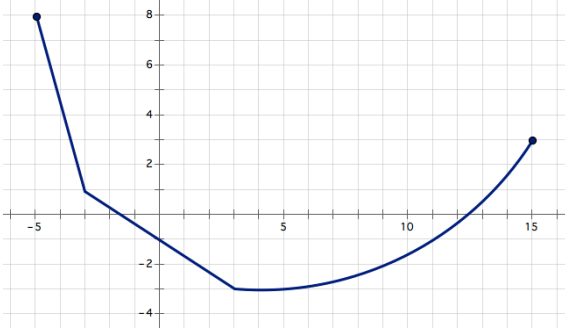
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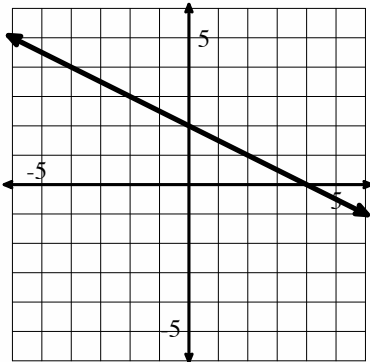
### Mod 3 Review

List Key Features of the following functions. Include **domain** and **range**, **increasing** and **decreasing**, **x** and **y intercepts**, and **max** and **min**, and **discrete**, **continuous** or **discontinuous**. *This list will not be provided on the test. You must memorize the key features.*

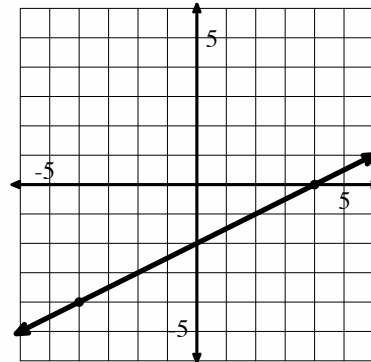
1.



2.



3.



4. What features would every continuous linear function have?

a) Domain:

Range:

b) Increasing, decreasing:

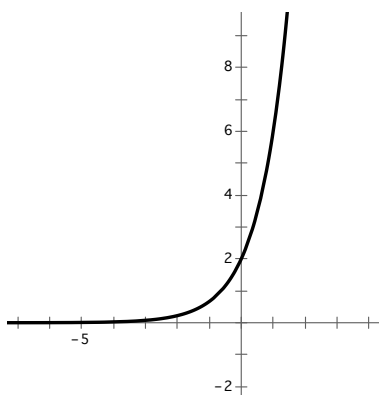
y-intercept:

c) x-intercept:

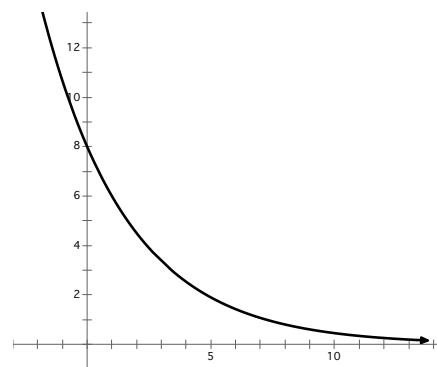
Min:

d) Max:

5.



6.



7. What features would every continuous exponential function ( $y = br^x$ ) have?

a) Domain:

Range:

b) Increasing, decreasing:

y-intercept:

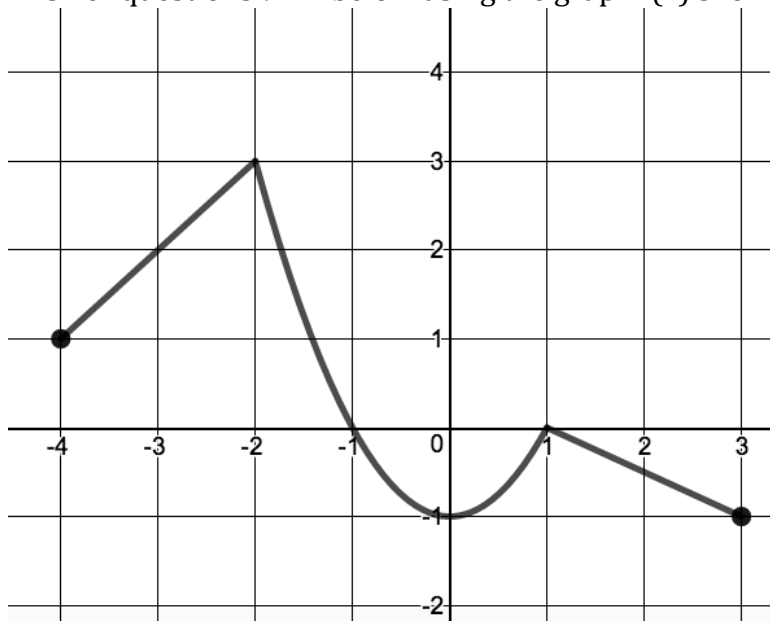
c) x-intercept:

Min:

d) Max:

8. What are the similarities and differences between continuous linear and exponential functions?

Answer questions 9-17 below using the graph  $f(x)$  shown.



9. What is the domain of the graph? (in set notation and interval notation)

10. Find the following values:

a.  $f(-3)$

b.  $f(0)$

c.  $f(1)$

d.  $f(-1.5)$

11. Find the x-value for each of the given outputs:

a. If  $f(x)=3$ ,  $x=$  \_\_\_\_\_

b. If  $f(x)=0$ ,  $x=$  \_\_\_\_\_

c. If  $f(x)= -1$ ,  $x=$  \_\_\_\_\_

12. What is the minimum? the maximum?

13. What is happening on the interval  $[1, 3]$ ?

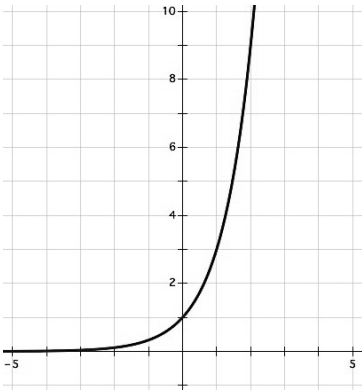
14. On what intervals is the function increasing?

15. List all the intercepts.

16. Over what interval(s) is there a constant rate of change?

17. Is this function continuous, discrete, or discontinuous? How do you know?

18.  $g(x)$



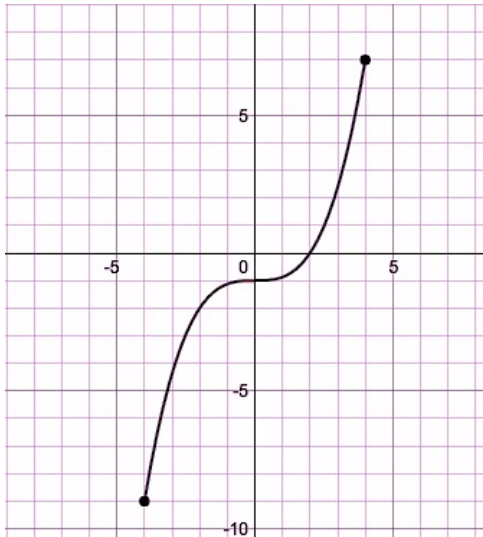
a)  $g(2) = \underline{\hspace{2cm}}$

b)  $g(x) = 3, x = \underline{\hspace{2cm}}$

c)  $g(0) = \underline{\hspace{2cm}}$

d. What is the explicit rule for  $g(x)$

Answer the following questions using the graph  $h(x)$  on below.



19. Find the following values:

a.  $h(2)$

b.  $h(0)$

c.  $h(4)$

d.  $h(-3)$

20. Find the  $x$ -value for each of the given outputs.

a. If  $h(x) = 1, x = \underline{\hspace{2cm}}$

b. If  $h(x) = -2, x = \underline{\hspace{2cm}}$

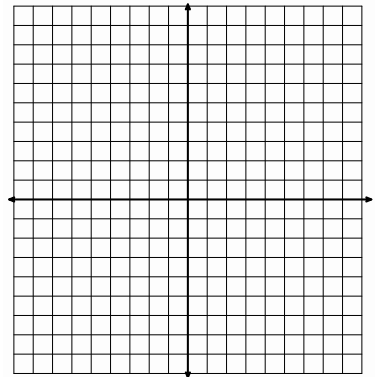
c. If  $h(x) = 7, x = \underline{\hspace{2cm}}$

d. If  $h(x) = -9, x = \underline{\hspace{2cm}}$

Given the descriptions below, sketch a possible graph of the function. There is more than one possible correct answer.

21.

- The function has a minimum at -5.
- The function has a maximum at 8.
- The function has two intervals on which it is decreasing and one interval on which it is increasing.
- The Domain of the functions contains all Real numbers from 1 to 9.



22.

- This function is not continuous anywhere.
- The function contains only seven elements in its domain.
- The values of the domain are between -10 and 2.
- The values of the range are between -1 and 3.

