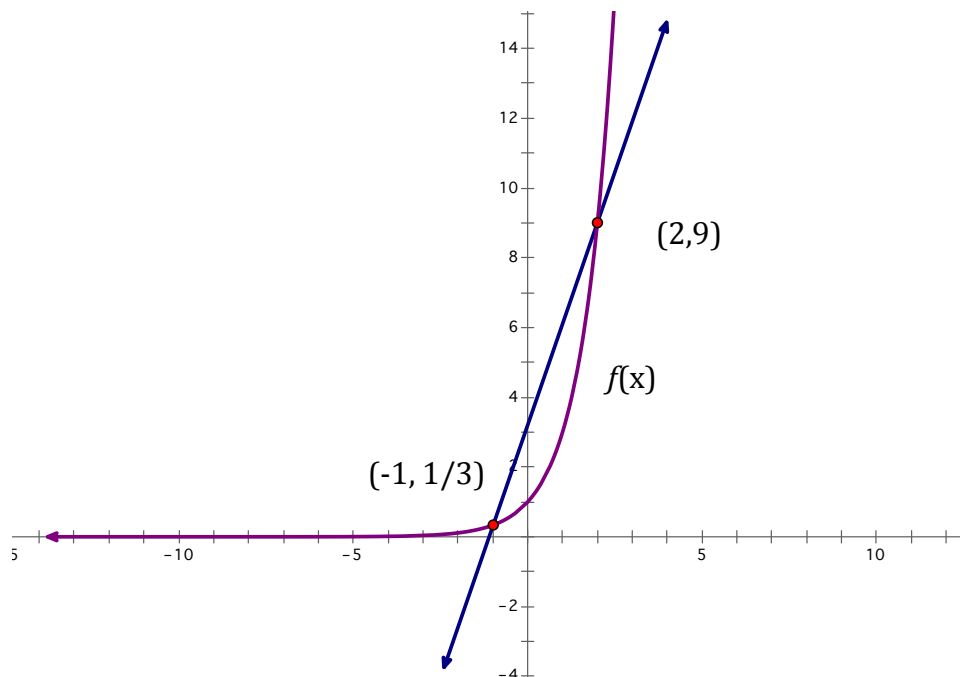# Average Rate of Change and Some Functions Review
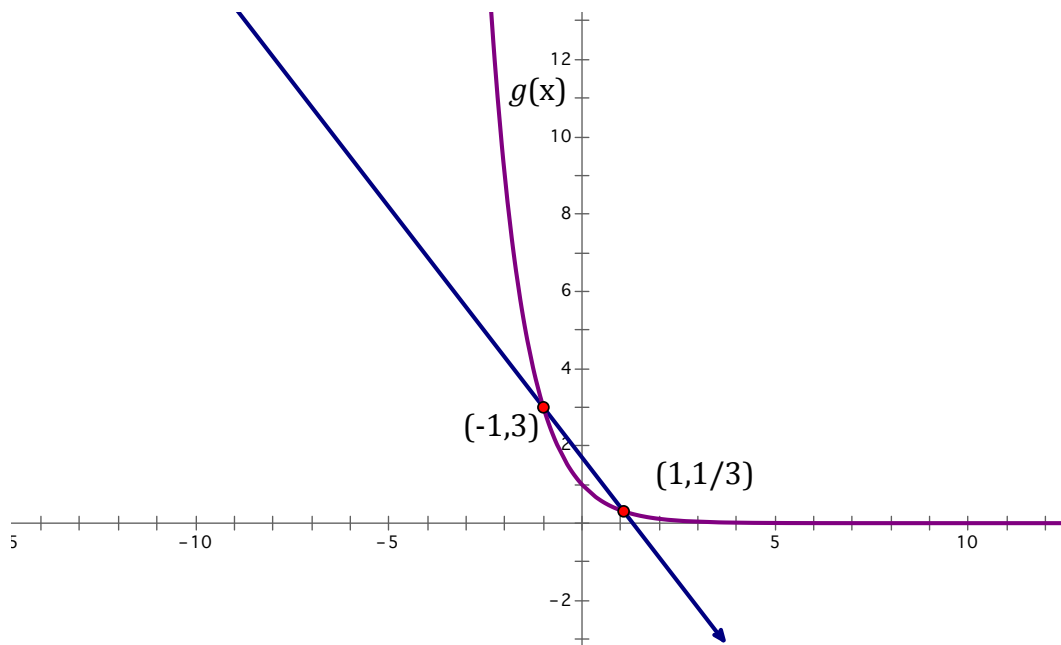
1. (a) *Write the equation for* $f(x)$

   (b) *Find the average rate of change when x is between -1 and 2*

   (2,9)

   f(x)

   (-1, 1/3)

2. (a) *Write the equation for* $g(x)$

   (b) *Find the average rate of change when x is between -1 and 1*

   g(x)

   (-1,3)

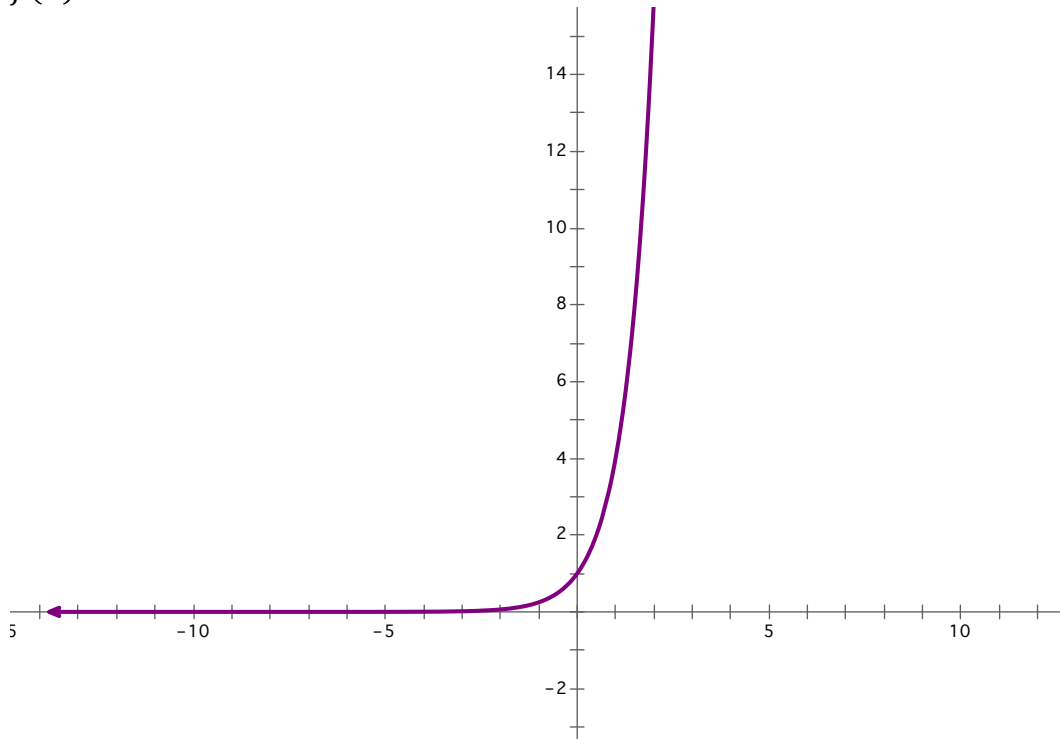   (1,1/3)

Name_____          Period_____          Date_____

For the following functions, find the average rate of change over the given interval.

3. $f(x) = 4^x$                     when x is between 0 and 1



4. $f(x) = 2^x$                     when x is between -2 and 1

5. $f(x) = 5^x$                     when x is between -4 and 3

6. $f(x) = 3 \cdot 6^x$                     when x is between 0 and 5

Name_____    Period_____    Date_____

Write the equation of the line in slope-intercept form given the following information.  The line passes through points P and Q.

8.  $f(0) = 6$, $f(n) = f(n-1) + ¼$

9.  m = 2, P(-7, -5)

10.  $12x - 3y + 9 = 0$

11.  P( -7, -4 ) Q(5, -28)

12.  $y - 7 = ½ (x + 13)$

13.  P(-1, 8) Q(7, -8)

Given are the 4 forms of the same linear equation. In each equation, A)  Circle the rate of change, B) name the point that describes the y-intercept, and  C) name the point that describes the x-intercept.  Be prepared to explain which equation you prefer for finding A, B, and C.

| slope-intercept | point-slope | standard | recursive formula | answer B & C | |
|---|---|---|---|---|---|
| 14.  y = 3x – 2 | y – 13 = 3(x – 5) | 3x – y = 2 | $f(0) = -2, f(n)=f(n-1) + 3$ | B | C |
| 15.  y = ¼ x +7 | y – 5 = ¼ (x + 8) | x – 4y = -28 | $f(0)=7, f(n) = f(n-1) + ¼$ | | |
| 16. y = -⅔x + 3 | y + 1 = -⅔(x – 6) | 2x + 3y = 9 | $f(0)=3, f(n) = f(n-1) - ⅔$ | | |

17. What does it mean for a function to be linear?

18. Are all linear function continuous? Explain.

19. Given the two functions below address the statements.

g(x) = 3x + 2                          f(1)= 5,   f(x) = f(x-1) + 3

   A) What are the names of the format of each function?

   B) Are these functions the same?

   C) Can you use 3.25 as a domain value in each? Explain?

   D) What is the domain of each function? How do you know?

Given the two points create both a linear and an exponential model. (Show your work)

20. (0, 7) ( 5, 32)                          21. ( 2, 8) (6, 128)

22. (-3, 2) (1, 164)                         23. ( -1, 125) (2, 5)

24. Explain how you find the linear equations when given two points.

25. Explain how you find the exponential equations when given two points.