

# Exam 4: Cumulative

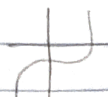
1.  $(0, 150)$   $(-1, 350)$

-1      0

350      150

0.42857143

↳ 0.57142857

2.  → function

x	-1	0	1	1.5	2	3	3.5
y	18	8	2	0.5	0	2	4.5

↳ 2 outputs for the same #

4. constant speed: 31 ft/sec

Initial: 6090

t → # of seconds since Linda left her house

d → represent Linda's distance from the restaurant.

$d(t) = 6090 - 31t$  → in terms of the number

of seconds since she left her house.

5. Pies → 12

$f(n) = 12n + 7$

shipping → \$7.00

pie # → shipping

$x = 12y + 7$

$\frac{x-7}{12} = \frac{12y}{12} \rightarrow y = \frac{x-7}{12}$

6.  $y = 2x^2 + 3x + 4$

$2(6)^2 + 3(6) + 4$

$x = 0 = 4$

$2(36) + 18 + 4$

$x = 6 = 94$

94

$(0, 4)$   $(6, 94)$

$\frac{94-4}{6-0} = 15$

$y = 2x^2 + 3x + 4$

$x = -1 = 3$

$2(-1)^2 + 3(-1) + 4$

$2(2)^2 + 3(2) + 4$

$x = 2 = 18$

$2(1) - 3 + 4$

$2(4) + 6 + 4$

$(-1, 3)$   $(2, 18)$

$2 - 3 + 4 \rightarrow 3$

$8 + 10 \rightarrow 18$

$\frac{18-3}{2-(-1)} = \frac{15}{3} \rightarrow 5$

7. 5 micrograms decrease by 67%.

Percent Change: 33% → decreasing -

a.  $|x+1| < 10$

$x+1 < 10$

$x = 9$

$x+1 > -10$

$x = -11$

b)  $|x-14| \geq 5$

$x-14 \geq 5$

$x = 19$

$x-14 \leq -5$   
 $+14 \quad +14$

$x = 9$

10.  $\frac{2y}{2} = \frac{2x+3}{2} \rightarrow y = x+3$

$y = \frac{x+3}{2}$

11. 51 gallon tank  
decreasing 3  
range?

$f(t) = 51 - 3t$   
 $v \rightarrow$  # of gallons in tank  
 $t \rightarrow$  hours since draining

12. doubles

bacteria contains 21

$2x \rightarrow$  doubles

13. \$1000 APR of 3.6% compounded daily

16.  $f(x) = 7-x$

$g(t) = t + \sqrt{9t^2}$

$\rightarrow f(g(n))$

$7-t + \sqrt{9t^2}$

$\hookrightarrow 7-4 + \sqrt{9(4)^2}$

$7-4 + \sqrt{9 \cdot 16}$

$7-4 + 12 \rightarrow 15$

17.  $\frac{x}{5} + 8 = y - 3$

$3y = x+8$

$\frac{3x+7}{-1} = \frac{y-7}{-1}$

$\frac{3x}{3} = \frac{y-7}{3}$

4.  $\frac{x+3}{4} = y - 4 \rightarrow \frac{x+3}{-3} = \frac{y-4}{-3}$

$\frac{2x+11}{-4} = \frac{y-4}{-4}$

$\frac{2x}{2} = \frac{y-4}{2}$

$\frac{4x+16}{-16} = \frac{y-16}{-16} \rightarrow \frac{4x}{4} = \frac{y-16}{4}$

18.  $(-3, -8)$  and  $(2, 5)$

$(x_2 - x_1)(y_2 - y_1)$

$(2 - (-3))(5 - (-8))$

19.  $1 \frac{13}{17} 4 \frac{5}{11} 8$

$17 \quad 5 \quad -11 \quad -27$

$-12 \quad -16$

$\frac{5-17}{4-1} = \frac{-12}{3} \rightarrow -4$