

Week in Review # 2

1. (a) $0 < x < 2$ and $x > 8$
 (b) $4 < x < 6$
 (c) $4 < x < 6$
 (d) $\frac{f(7) - f(3)}{7 - 3}$
2. Graph given in written solutions.
3. $\frac{f(4)-f(1)}{4-1} = \frac{-5-10}{4-1} = \frac{-15}{3} = -5$
4. (a) average rate of change = \$250/yr

for the first two years of the account the ballance grew on average by \$250 each year.

 (b) average rate of change = \$200/yr

During the third and fourth years, i.e. from t=2 to t=4, the ballance of the account grew on average by \$2000 each year.
5. (a) average rate of change = \$ -0.006190 per day

From December 26 to January 16 the price per gallon of gas decreased by an average of \$0.00619 each day.

 (b) average rate of change = \$-0.006

From December 29 to January 8 the price per gallon of gas decreased by an average of \$0.006 each day.
6. (a) initial value = 37
 relative rate of decay = 13%
 (b) initial value = 100
 relative rate of growth = 3.4%
7. (a) $y = 200(.5)^x$
 (b) $y = 1000(1.2)^x$
8. (a) $y = P_o(1.12)^x$ where P_o is the initial population. i.e. when $x = 0$.
 (b) $y = 200000x + P_o$ where P_o is the initial population. i.e. when $x = 0$.
 (c) $y = 100(0.96)^x$ where the 100 represents 100% of the drug in the body.
- (d) $y = -135x + P_o$ where P_o is the initial number of lollypops.
9. the two points are (2, 300) and (5, 2100)

$$y = 81.98276498(1.912931183)^x$$
10. formula $y = 75(0.9175)^x$
 (a) 57.92679mg
 (b) 26.68911mg
11. the points (0, 100) and (7, 50) give the formula
 $y = 100(0.9057236643)^x$
 (a) 7432997%
 (b) The relative rate of decay is 9.4276336%. Since this is less than 12% this pesticide is not approved.
 (c) 14 days.