Quiz 6, 15 October 2008

1. If you drive 50 miles in 40 minutes, find the average speed in miles per hour.

   Solution: Forty minutes is 2/3 of an hour. The average speed is $50/(2/3) = 150/2 = 75$ miles per hour.

2. Let $f(x) = -3x + 3$. Find the average rate of change of f between $x = 11$ and $x = 15$.

   Solution: For any linear function on any interval, the average rate of change is the slope. In this case, -3.

3. If F represents temperature in degrees Fahrenheit and C represents temperature in degrees Celsius, then F and C are related by $5(F - 32) = 9C$. If F increases by 45, how much does C increase?

   Solution: We solve for C in terms of F. We obtain $C = (5/9)(F - 32)$ and see that the slope,

   $$\frac{\text{Change in } C}{\text{Change in } F} = \frac{5}{9}.$$

   Thus, if the change in F is 45, then the change in C is $45 \cdot \frac{5}{9} = 25$.