1. Use the distance formula.
   
   \[ \text{distance} = \sqrt{(42 - 18)^2 + (50 - 12)^2} \]
   
   \[ = \sqrt{2020} \]
   
   \[ = 2\sqrt{505} \]
   
   44.9 So, the pass is about 45 yards

2. i) e,f

   ii) d

   iii) none

   iv) e,f

   v) a

   vi) d

3. a) \( X_m = \frac{x_1 + x_2}{2} \) and \( y_m = \frac{y_1 + y_2}{2} \)

   So \( x_2 = 2x_m - x_1 \) and \( y_2 = 2y_m - y_1 \)

   b) (7, 0)

4. a) and b)
\[ m = \frac{-50 - (-25)}{600 - 300} = \frac{-25}{300} = -\frac{1}{12} \]

c) \[ y - (-50) = -\frac{1}{12} (x - 600) \]
\[ y + 50 = -\frac{1}{12} x + 50 \]
\[ y = -\frac{1}{12} x \]

d) Because \( m = -1/12 \), for every change in the horizontal measurement of 12 feet, the vertical measurement decreases by 1 foot.

e) \( \frac{1}{12} \approx 0.083 = 8.3\% \) grade

5. \( f(x) = 4x^2 - 2x \)
\[ f(x + h) = 4(x + h)^2 - 2(x + h) = 4(x^2 + 2xh + h^2) - 2x - 2h = 4x^2 + 8xh + 4h^2 - 2x - 2h \]
\[ \frac{f(x + h) - f(x)}{h} = \frac{4x^2 + 8xh + 4h^2 - 2x - 2h - 4x^2 + 2x}{h} = \frac{8xh + 4h^2 - 2h}{h} = 8x + 4h - 2 \quad , h \neq 0 \]

6. a) \( s = -16t^2 + 96t \)

b) 

c) The slope of the secant line through \( (2, s(2)) \) and \( (5, s(5)) \) is \(-16\).

d) The average rate of change from \( t = 2 \) to \( t = 5 \): \[ \frac{s(5) - s(2)}{5 - 2} = \frac{80 - 128}{3} = -\frac{48}{3} = -16 \text{ ft/sec.} \]