Name: _____

Teacher: A. Zito Lakeside Academy MYP 3 - Worksheet/Practice Test

Analytical Geometry: Review Questions

Change in x : $\Delta x = x_2 - x_1$ *Change in y* : $\Delta y = y_2 - y_1$
Distance Formula : $d(A,B) = \left\| \sqrt{(\Delta x)^2 + (\Delta y)^2} \right\|$
Midpoint Formula : $\left(x_m = \frac{x_1 + x_2}{2}, \; y_m = \frac{y_1 + y_2}{2} \right)$
Division Point : $\left(x_D = x_1 + \left(\frac{a}{a+b}\right)(\Delta x), \quad y_D = y_1 + \left(\frac{a}{a+b}\right)(\Delta y) \right)$

Remember Ratio vs. Fraction	
Ratio	Fraction
$a : b$	$\frac{a}{a+b}$
a to b	*a out of a + b*
ratio $\frac{a}{b}$	

1) For each of the following set of coordinates determine:
   - The change in x and y from $Point\ E$ to $Point\ F$
   - The change in x and y from $Point\ F$ to $Point\ E$
   - The length (distance) of $\overline{EF}$
   - The midpoint of $\overline{EF}$

   a) $E(-7,3)$ and $F(-4,-1)$
   b) $E(-8,5)$ and $F(36,-28)$
   c) $E(-73,14)$ and $F(35,9)$
   d) $E(-1,4)$ and $F(8,-8)$
   e) $E(3,17)$ and $F(15,24.5)$

2) Determine the coordinate of $Point\ D$ that divides line segment $\overline{EF}$ in a ratio 1:4 from $Point\ E\ (-7,\ 1)$ to $Point\ F(8,-34)$

3) Determine the coordinate of $Point\ D$ that is located $\frac{3}{4}$ of the way from $Point\ E\ (2,3)$ to $Point\ F(-26,7)$

4) Find the endpoint E of $\overline{EF}$ with the midpoint $M(-3,2)$ and endpoint $F(6,-14)$