Math& 151 Worksheet #1 Name SOLUTIONS (print)
5 points

1. Write the equation of the line that contains the point (3, 5) and has slope 4.

$y = 5 + 4(x-3)$

$y = 4x - 7$

POINT-SLOPE $y - 5 = 4(x-3)$

$y = 5 + 4(x-3) = 4x - 7$

2. Point A = (2 fish, \$8) and point B = (6 fish, \$18).
What is the slope of the line through A and B? (include units) m = $\frac{\$5}{2\ \text{FISH}}$ OR $\frac{5}{2}\ \frac{\$}{\text{FISH}}$

$\text{SLOPE} = \frac{\Delta y}{\Delta x} = \frac{\$18 - 8}{6 - 2\ \text{FISH}} = \frac{10}{4} = \frac{\$5}{2\ \text{FISH}}$

3. $y = f(x) = 6 - x^2$. The slope of the tangent line at any point (x, f(x)) on this graph is m = -2x.
(a) What is the slope of the tangent line at the point (1, 5)? m = -2
(b) Where does the tangent line to the graph at (1,5) intersect the x-axis? $\left(\frac{7}{2}, 0\right)$

(a) $x = 1$ $m = -2(1) = -2$

(b) $(1, 5)$ $m = -2$

$y - 5 = -2(x-1)$

$y = 0$ $\quad -5 = -2(x-1)$

$\frac{5}{2} = x - 1 \Rightarrow x = \frac{5}{2} + 1 = \frac{7}{2}$

4. In the figure, the point P on the curve is fixed, and the point Q is moving to the left along the curve toward the point P. As Q moves toward P the slope from P to Q is
Increasing **Decreasing** **Constant** or **None** of these (circle one)

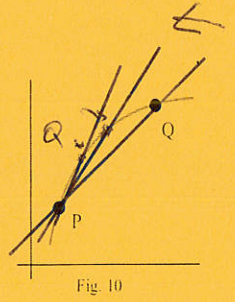

Fig. 10

5. Water is pouring into an empty vase (see figure) at a constant rate. Sketch a graph of the height of the water as a function of time.