AP Calculus AB

Name: _____

Tangent Line Practice

HW 2-4

Find the equation of the line tangent to the function at the given point. There may be more than one answer!

1) $f(x) = x^3 - 3x^2 + 2$ at $(3, 2)$

2) $f(x) = x^3 - 2x^2 + 2$ at $(2, 2)$

3) $f(x) = 2x^2 + 3$ at $(2, -7)$

4) $y = 2x - x^2$ at $(2, 9)$

5) Let $f(x) = x^3$. Write the equation of the normal line to the curve at $x = 4$.

6) At what point is the tangent line to $f(x) = x^2 - 6x + 1$ horizontal?

7) An equation of the line tangent to the graph of $f(x) = x(1-2x)^3$ at the point $(1,-1)$ is...
(Hint: the derivative is $f'(x) = -32x^3 + 36x^2 - 12x + 1$)

8) An equation of the line tangent to the graph of $f(x) = \frac{2x+3}{3x-2}$ at the point $(1,5)$ is... (hint: $f'(x) = \frac{-13}{(3x-2)^2}$)

9) At what point on the graph of $y = \frac{1}{2}x^2$ is the tangent line parallel to the line $2x - 4y = 3$?

10) At what x-value does $f(x) = x^4 + 2x^2$ have a tangent line with a slope of 1?