Calculus 12
6-6 Questions

1. Use implicit differentiation to find $\frac{dy}{dx}$

a) $x^2 - y^2 = 1$

b) $x^3 + y^3 = 6$

c) $xy = 4$

d) $x^2 + xy + y^2 = 1$

e) $x^3 + y^3 = 6xy$

f) $2xy^2 - y^3 = x^2$

g) $\sqrt{x} + \sqrt{y} = 1$

h) $\frac{2x}{x+y} = y$

2. Find the slope of the tangent line to the curve at the given point.

a) $x^2 + 4y^2 = 5,\ (1,-1)$

b) $x^4 + y^4 = 17,\ (2,1)$

c) $x^2 + x^3y^2 - y^3 = 13,\ (1,-2)$

d) $y^2 = 2xy - 3,\ (2,3)$

e) $\sqrt{x+y} + \sqrt{xy} = 4,\ (2,2)$

f) $\frac{1}{x} + \frac{1}{y} = 1,\ \left(\frac{3}{2},3\right)$

3. Find the equation of the tangent line to the curve at the given point.

a) $2x^2 - y^2 = 1,\ (-1,-1)$

b) $x^3 + y^3 = 9,\ (2,1)$

c) $y^5 + x^2y^3 = 10,\ (-3,1)$

d) $(x+y)^3 = x^3 + y^3,\ (-1,1)$