Calculus I
Section 3.6 – Implicit Differentiation

Find $\dfrac{dy}{dx}$ **for the following using implicit differentiation.**

1. $y^5 + 3x^2 y^2 + 5x^4 = 12$

2. $\sqrt{xy} = 6$

3. $x\sin y + \cos 2y = \cos y$

4. $x\cos y + y\cos(x) = 1$

5. $xy = \cot(y^2)$

6. $\cos y = x$

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7. $x^4 + y^4 = 16$

8. $x^2 - xy + y^3 = 8$

Find the equation (in slope-intercept form) of the tangent line to the curve at the given point.

9. $y^2 = x^3(2-x)$; (1,1)

10. $y^2 = x^3 + 3x^2$; (1, -2)
The tangent is horizontal at what points?