

MATH 224
Hints and Answers for Assignment 16
Some Implicit Differentiation Problems

General Advice: Review equations for ellipses, hyperbolas, and parabolas.

1: (a) Ellipse?

(b) Slope of tangent line is $-5/6$.

(c) $\nabla f(5, 4) = (20, 24)$

(d) Use dot product or fact that the slopes of perpendicular lines are negative reciprocals of each other.

2: (a) Hyperbola?

(b) Slope of tangent line is $5/6$.

(c) $\nabla f(5, 4) = (20, -24)$

3.: (a) $x^2 - y^2 = 8$

(b) Graph of $y = \left(\frac{x}{3}\right)^{3/2}$

(c) (6, -2)

(d) (6,3)

(e) $t = \sqrt{6}$