Calculus II
Practice Problems 10

In problems 1-4 put the conic in standard form, and find the center, vertices, foci.

1. $y - 8x^2 + 32x - 29 = 0$

2. $9x^2 + 4y^2 - 36x + 8y + 4 = 0$

3. $4x^2 - y^2 + 2y = 5$

4. $x^2 - 5y^2 - 4x + 10y = 1$

In problems 5-7, find the equation of the tangent line to the curve at the point (x_0, y_0) on the curve.

5. $x^2 - 5y = 0\ , \quad (10, 20)$

6. $x^2 + 4y^2 = 16\ , \quad (2\sqrt{3}, 1)$

7. $4x^2 - y^2 = 1\ , \quad (\sqrt{2}/2, 1)$

In each of problems 8 and 9, the curve described depends upon a parameter. Identify the parameter, and find the equation of the curve in terms of the parameter.

8. A parabola with axis the *x*-axis and focus at the origin.

9. A hyperbola with foci at (-1,0), (1,0).

10. Find the point (x, y) on the parabola $y^2 = 12x$ for which the line from the focus meets the tangent line at an angle of 45°.