Calculus I
Exam 1, Summer 2002

1. Find the equation of the line which goes through the point (2,-1) and is parallel to the line given by the equation $2x + 3y = 10$.

2. Find the derivatives of the following functions:

a) $f(x) = 2x^3 - 8x^2 + 1$

b) $g(x) = (x^2 + 1)(x^{-2} + 1)$

c) $h(x) = \dfrac{x+1}{x^2+1}$

3. Find the derivatives of the following functions:

a) $f(x) = (\cos(2x) + 1)^3$

b) $g(x) = (2x+1)^{-1}$

4. Find the equation of the line tangent to the curve $y = (x^2 - 1)^2$ at (2,9).

5. An object moves in a straight line so that its position at time t is given by $x(t) = (\sin t)^2$. What is the velocity of the object when $t = 3\pi/4$?