

### Worksheet 3: Derivatives

Find  $y'$  for each of the following functions:

1.  $f(x) = x^3 - 4x + 6$

3.  $f(u) = 6u^{-9}$

2.  $f(t) = \frac{1}{2}t^6 - 3t^4 + t$

4.  $g(x) = 5x^{-3/5}$

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

6.  $y = A + \frac{t}{(t-1)^2}$

7.  $y = \frac{\sin x}{x^2}$

8.  $y = \sin x \tan x$

9.  $y = \frac{1 + \sin x}{x + \cos x}$

10. Find an equation of the tangent line to the curve  $y = (2x)/(x + 4)$  that is parallel to the line  $2x - y = 3$ .

11. Find an equation of the tangent line to the curve  $y = 1/(1 + x^2)$  at the point  $(-1, 1/2)$