(C1-7.4) Name:

Homework Questions 4 – Using Standard Results to Differentiate

1. Use standard results to differentiate the following

a) $y = x^3 + 2x^2$

b) $y = \dfrac{x^{-3}}{2}$

c) $y = 3x^{-\frac{1}{2}}$

d) $y = x^{-\frac{1}{2}} + 2x^2$

e) $y = 5x^2 + 3x^{-\frac{1}{3}} + 2$

f) $y = 3x^2 - 2x^{-1} + 5$

g) $y = 6x^2 + \dfrac{x}{2} - 2$

h) $y = 8x^2 + 4x - 3$

i) $y = 2x^2 + 3x - 1$

J) $y = 6x^2 + 2x + 4$

2. Find the gradient of the following curves at the given points

a) $f(x) = \frac{1}{x^2}$ at the point (2 , 0.25)

b) $f(x) = \frac{5}{\sqrt{x}}$ at the point where x=9

3. Find the coordinate of the point on the curve

a) $y = x^2 - 3x + 1$ where the gradient is 7

b) $f(x) = 4x^2 - 7x + 3$ where the gradient is -3

c) $f(x) = x^2 + 5x + 3$ where the gradient is 1

d) $y = 7x - 3x^2$ where the gradient is -5

4. Find the coordinate of both points on the curve $y = x - \frac{x^3}{3}$ where the gradient is 0

5. Find the coordinate of both points on the curve $y = x^3 - 9x^2 + 10x - 5$ where the gradient is -14