

(C2-9.2a) Name:

Homework Questions 2 – Turning Points

1. Find the *coordinate* of the turning points of the following functions

a) $f(x) = 5x^2 - 10x + 7$

(1,2)

b) $y = 3x^2 - 3x + 9$

(0.5, 8.25)

c) $y = 6x^2 + 4x + 3$

$\left(-\frac{1}{3}, \frac{7}{3} \right)$

d) $f(x) = 4x^2 + 12x - 11$

(-1.5, -20)

2. Find the *x-coordinates* of both the turning points of the following functions

a) $y = \frac{x^3}{3} + \frac{5x^2}{2} + 6x + 7$

-3, -2

b) $f(x) = \frac{x^3}{3} + \frac{6x^2}{2} - 7x + 12$

-7, 1

c) $f(x) = \frac{x^3}{3} + \frac{3x^2}{2} - 14$

0, -3

5. Given the function below, find the coordinate of the turning point *and prove* that it is a minimum turning point

$$f(x) = 4x^2 + 4x - 1$$

$(-0.5, -2.) \frac{d^2y}{dx^2} > 0$

6. Given the function below, find the coordinates of *both* the turning points *and prove* which is the maximum and which is the minimum turning points

$$y = \frac{x^3}{3} - \frac{x^2}{2} - 12x + 5$$

Min (4, -29.33)
Max (-3, 27.5)