Name: _SOLUTIONS_

Student ID: _____

Quiz 1

Question 1. *(2 marks)*

Divide and simplify as much as possible:

$$\frac{12p^3q^2 - 4p^4q + 6pq^5}{2p^4q} \quad = \quad \frac{6q}{p} - 2 + \frac{3q^4}{p^3}$$

Question 2. *(3 marks)*

Solve for T_2 in the following formula:

$$R = \frac{A(T_2 - T_1)}{H}$$

$$HR = A(T_2 - T_1)$$

$$\frac{HR}{A} = T_2 - T_1$$

$$\frac{HR}{A} + T_1 = T_2$$

Question 3. *(5 marks)* Given $f(x) = 3x^2 - 2x + 4$ evaluate:

$$\frac{f(x+h) - f(x)}{h}$$

Simplify as much as possible.

$$\frac{f(x+h) - f(x)}{h} = \frac{\overbrace{[3(x+h)^2 - 2(x+h) + 4]}^{f(x+h)} - \overbrace{[3x^2 - 2x + 4]}^{f(x)}}{h}$$

$$= \frac{[3(x^2 + 2xh + h^2) - 2x - 2h + 4] - 3x^2 + 2x - 4}{h}$$

$$= \frac{3x^2 + 6xh + 3h^2 - 2x - 2h + 4 - 3x^2 + 2x - 4}{h}$$

$$= \frac{6xh + 3h^2 - 2h}{h}$$

$$= 6x + 3h - 2$$