

Quiz 5

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. pg.74#30 (2 marks) Determine the domain and range of the function: $y = \sqrt{x-5}$

$$\text{Domain: } [5, \infty)$$

$$\text{Range: } [0, \infty)$$

Question 2. pg.74#34 (3 marks) If $f(x) = \frac{2x}{x-1}$, then find:

a. $f(2)$

$$a) f(2) = \frac{2(2)}{2-1} = 4$$

c. the value of x when $f(x) = 3$.

$$b) 3 = \frac{2x}{x-1}$$

$$3(x-1) = 2x$$

$$3x - 3 = 2x$$

$$x = 3$$

d. $f(1+h)$

$$d) f(1+h) = \frac{2(1+h)}{1+h-1} = \frac{2+2h}{h}$$

Question 3. pg.75#50 (5 marks) If $f(x) = 2x^2 - 5x - 3$ then find:

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

$$= \frac{2(x+h)^2 - 5(x+h) - 3 - [2x^2 - 5x - 3]}{h}$$

$$= \frac{2x^2 + 4xh + 2h^2 - 5x - 5h - 3 - 2x^2 + 5x + 3}{h}$$

$$= \frac{4xh + 2h^2 - 5h}{h}$$

$$= \frac{h(4x + 2h - 5)}{h}$$

$$= 4x + 2h - 5$$