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Bonus Quiz 1

This quiz is graded out of 10 marks. No books, 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:

$y = \sqrt{x-5}$ Domain : $[5, \infty)$

Range: $[0, \infty)$

Question 2. pg.89#6d *(3 marks)* Find the equation of the line through the point $(-4, 1)$ and perpendicular to the line $5x - 2y = 3$.

$-2y = -5x + 3$

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

$\therefore$ slope of $\perp$ line

$m = \frac{-2}{5}$

$y = mx + b$

$y = -\frac{2}{5}x + b$

$1 = -\frac{2}{5}(4) + b$

$\frac{5}{5} - \frac{8}{5} = b$

$b = \frac{-3}{5}$

$\therefore y = -\frac{2}{5}x - \frac{3}{5}$

Question 3. pg.101#1e *(5 marks)* Graph the parabola, noting the intercepts and the vertex.

$f(x) = x^2 + 6x$

y-int: $(0, f(0)) = (0, c) = (0, 0)$

x-int: $0 = x^2 + 6x$

$0 = x(x+6)$

$x = 0 \qquad x + 6 = 0$

$x = -6$

vertex:

$\left(\frac{-b}{2a}, f\left(\frac{-b}{2a} \right) \right)$

$= \left(\frac{-6}{2(1)}, f\left(\frac{-6}{2(1)} \right) \right)$

$= (-3, f(-3))$

$= (-3, (-3)^2 + 6(-3))$

$= (-3, -9)$

$(-3, -9)$