

Quiz 4

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.60#3u (6 marks) Solve for x:

$$\frac{x}{x-1} - \frac{12}{x^2-x} + \frac{1}{x-1} = 0 \quad \text{LCD} = x(x-1)$$

$$\frac{x}{x-1} - \frac{12}{x(x-1)} + \frac{1}{x-1} = 0$$

$$\frac{x \cancel{x(x-1)}}{\cancel{x-1}} - \frac{12 \cancel{x(x-1)}}{\cancel{x(x-1)}} + \frac{x \cancel{(x-1)}}{\cancel{(x-1)}} = 0$$

$$x^2 - 12 + x = 0$$

$$x^2 + x - 12 = 0$$

$$(x+4)(x-3) = 0$$

$$\begin{array}{l} / \quad \backslash \\ x = -4 \quad x = 3 \end{array}$$

Check solution:

	$x = -4$	$x = 3$
$x-1$	$-4-1 \neq 0$	$3-1 \neq 0$
$x(x-1)$	$-4(-4-1) \neq 0$	$3(3-1) \neq 0$

$\therefore x = -4$ and $x = 3$

Question 2. pg.65#20 (4 marks) Find the distance, and the midpoint of the line segment, between the points: (3, -2) and (1, -8).

$$\begin{aligned} d &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(1 - 3)^2 + (-8 - (-2))^2} \\ &= \sqrt{(-2)^2 + (-6)^2} \\ &= \sqrt{4 + 36} \\ &= \sqrt{40} \\ &= 2\sqrt{10} \end{aligned}$$

$$\begin{aligned} (x_m, y_m) &= \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \\ &= \left(\frac{3 + 1}{2}, \frac{-2 - 8}{2} \right) \\ &= (2, -5) \end{aligned}$$