

QUESTION 1

1.1.1	Rational ✓	(1)
1.1.2	Rational ✓	(1)
1.1.3	Irrational ✓	(1)
1.1.4	Rational ✓	(1)
1.1.5	Irrational ✓	(1)
1.2	$x = 0,\overline{81}$ $100x = 81,\overline{81}$ ✓ $\underline{-x = 0,\overline{81}}$ $99x = 81$ ✓ $x = \frac{81}{99}$ ✓	(3)
1.3	$8a^3 + 12a^2b + 18ab^2 - 12a^2b - 18ab^2 - 27b^3$ ✓ ✓ $= 8a^3 - 27b^3$ ✓	(3)
		[11]

QUESTION 2

2.1	$3x(x^2 - 4)$ ✓ $= 3x(x + 2)(x - 2)$ ✓	(3)
2.2	$x^2 - 8x + 15$ ✓ $= (x - 5)(x - 3)$ ✓	(3)
2.3	$2a(3a + 1) - b(3a + 1)$ ✓ $= (3a + 1)(2a - b)$ ✓	(3)
2.4	$(2b + 3)(4b^2 - 6b + 9)$ ✓ ✓	(3)
2.5	$(2x - 3)(3x + 5)$ ✓ ✓ ✓	(3)
		[15]

5.6	$\frac{5^{2x-1} \cdot (3^2)^{x-2}}{(3 \cdot 5)^{2x-3}}$ $= \frac{5^{2x-1} \cdot 3^{2x-4}}{3^{2x-3} \cdot 5^{2x-3}}$ $= 5^{2x-1-(2x-3)} \cdot 3^{2x-4-(2x-3)}$ $= 5^{2x-1-2x+3} \cdot 3^{2x-4-2x+3}$ $= 5^2 \cdot 3^{-1}$ $= \frac{25}{3}$	<p><i>Prime factors</i></p> <p><i>Power into brackets</i></p> <p><i>Group same bases</i></p> <p><i>Ans</i></p>	(4)

Total: 75 Marks