Revision Sheet 3: Algebra 2 | 6th Year OL Maths | Due Date:

Q1. Solve the following equations. (Chap 2 pg 125 - 128)

i) $x^2 + 2x - 15 = 0$ Ans: x = -5, 3

ii) $2x^2 + 13x - 45 = 0$ Ans: x = -9, $\frac{5}{2}$

iii) $144x^2 - 16 = 0$ Ans: x = $-\frac{1}{3}, \frac{1}{3}$

iv) $6 - 31x = -5x^2$ Ans: y = 6, $\frac{1}{5}$

v) $\frac{x^2}{4} + \frac{7}{20}x + \frac{1}{10} = 0$ Ans: y = -1, $-\frac{2}{5}$

Q2. Solve the following equations: (Chap 2 pg 129/130/131)

i) $x^2 - 8x + 9 = 0$ (in surd form) Ans: x = $4 \pm \sqrt{7}$

ii) $2x^2 - 3x - 23 = 0$ (2 decimal places) Ans: x = -2.72, 4.22

Q3. Solve the following simultaneous equations: (Chap 2 pg 132/133)

i) $\frac{1}{x+4} + \frac{1}{x+1} = \frac{1}{2}$ Ans: -3, 2

ii) $\frac{4}{2x-5} - \frac{3}{5x-1} = -3$ Ans: $\frac{26}{15}, \frac{1}{2}$

Q4. Form a quadratic equation with the following roots: (Chap 2 pg 134/135)

i) Roots: 0, 7 Ans: $x^2 - 7x = 0$

ii) Roots: -8, 8 Ans: $x^2 - 64 = 0$

iii) Roots: $\frac{1}{2}$, 3 Ans: $2x^2 - 7x + 3 = 0$

Q5. Solve the following equations: (Chap 2 pg 136/137)

i) $x = 5 - y$
$x^2 + y^2 = 17$ Ans: (4, 1) and (1, 4)

ii) $5x - y = -13$
$x^2 + y^2 = 13$ Ans: (-2, 3) and (-3, -2)

iii) $2x = y + 3$
$x^2 + y^2 - 3xy = -45$ Ans: (-9, -21) and (6, 9)

Past Exam Questions:

Q6. 2019 Paper 1 Q4(b)

Solve the simultaneous equations:

$$x - 5y = -13$$
$$x^2 + y^2 = 13.$$

Ans: (2, 3) or (-3, 2)

Q7. 2018 Paper 1 Q3(a)

Solve the equation $2x^2 - 7x - 3 = 0$. Give each answer correct to 2 decimal places.

Ans: 3.89, -0.39

Q8. 2017 Paper 1 Q3(a)

Find the two values of x for which $3x^2 - 6x - 8 = 0$.
Give each answer correct to 1 decimal place.

Ans: x = 2.9, -0.9

Q9. 2017 Paper 1 Q4(b)

Solve the simultaneous equations:

$$y + 5 = 2x$$
$$x^2 + y^2 = 25.$$

Ans: (0, -5) or (4, 3)

Q10. 2018 Paper 1 Q6(a)

Find the solutions of

$$\frac{5}{x+3} - \frac{1}{x} = \frac{1}{2} \text{ where } x \neq -3, 0, x \in \mathbb{R}.$$

Ans: x = 2, 3