

**UNIT 25** *Solving Equations***CSEC Revision Test**

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1. (a) Simplify  $\frac{1}{a+2} + \frac{1}{a-4}$  (2 marks)

(b) Simplify  $\frac{x^2 - 9}{3x - 9}$  (3 marks)

2. Show that

$$(a - b)^2(a + b) + ab(a + b) = a^3 + b^3 \quad (\text{CXC}) (3 \text{ marks})$$

3. Express as a single fraction:

$$\frac{3p}{2} + \frac{q}{p} \quad (\text{CXC}) (2 \text{ marks})$$

4. Solve the pair of simultaneous equations:

$$\begin{aligned} x^2 &= 4 - y \\ x &= y + 2 \end{aligned} \quad (\text{CXC}) (5 \text{ marks})$$

5. Solve for  $p$  and  $r$  given

$$\begin{aligned} 3p + 2r &= 7 \\ p^2 - 2r &= 11 \end{aligned} \quad (\text{CXC}) (5 \text{ marks})$$

6. Solve the simultaneous equations

$$\begin{aligned} y &= 2x + 3 \\ x^2 + y^2 &= 2 \end{aligned}$$

You must show your working. (5 marks)

**(25 MARKS)**

## UNIT 25 Solving Equations

CSEC Revision Test  
Answers

1. (a)  $\frac{(a-4)+(a+2)}{(a+2)(a-4)} = \frac{2(a-1)}{(a+2)(a-4)}$  M1 A1
- (b)  $\frac{(x-3)(x+3)}{3(x-3)}$  B1 B1
- $= \frac{x+3}{3} \left( \text{or } \frac{x}{3} + 1 \right)$  B1 (5 marks)
2. (a)  $(a-b)^2(a+b) + ab(a+b) = (a^2 - 2ab + b^2)(a+b)$  M1
- $+ a^2b + ab^2$  A1
- $= a^3 - 2a^2b + b^2a + a^2b - 2ab^2 + b^3$
- $+ a^2b + ab^2$
- $= a^3 + b^3$  A1 (3 marks)
3.  $\frac{3p}{2} + \frac{q}{p} = \frac{3p^2 + 2q}{2p}$  M1 A1 (2 marks)
4.  $x^2 = 4 - y = 4 - (x - 2)$  M1 A1
- $x^2 + x - 6 = 0$
- $(x+3)(x-2) = 0$  M1
- $x = -3, y = -5, \text{ or } x = 2, y = 0$  A1 A1 (5 marks)
5. Adding equations
- $p^2 + 3p - 18 = 0$  M1
- $(p+6)(p-3) = 0$  A1
- $p = -6, r = \frac{25}{2} \text{ or } p = 3, r = -1$  A1 A1 (5 marks)
6.  $x^2 + (2x+3)^2 = 2$  M1
- $5x^2 + 12x + 7 = 0$  A1
- $(5x+7)(x+1) = 0$  M1
- $x = -\frac{7}{5}, y = \frac{1}{5} \text{ or } x = -1, y = 1$  A1 A1 (5 marks)

**(TOTAL MARKS 25)**