



# Core Mathematics C34(GCE)

Practice Answer 11

Standard A<sup>★</sup>

*Mr. S. V. Swarnaraja*

*(Team Leader, Marking Examiner & Author)*

[www.swanash.com](http://www.swanash.com)

**CRITICAL THINKING IS THE KEY TO SOLVE REAL WORLD PROBLEMS.  
CHILDREN MUST BE TAUGHT HOW TO THINK, NOT WHAT TO THINK.  
A GREAT TEACHER WILL BE CREATING STUDENTS TO DO NEW THINGS  
THROUGH CRITICAL THINKING, NOT SIMPLY REPEATING WHAT OTHER  
GENERATIONS HAVE DONE BEFORE. WE DO NOT NEED ANOTHER  
ALBERT EINSTEIN OR ISAAC NEWTON.... WE NEED A PERSON BETTER  
THAN THEM.**

**MR.S.V. SWARNARAJA**

**Answer:**

**Method 1**

$$P(x) = (x - 1)g(x) + 5$$

$$P(x) = (x - 2)f(x) + 7$$

$$P(1) = 5$$

$$P(2) = 7$$

After division by  $(x - 1)(x - 2)$  the remainder must be of the form  $(ax + b)$

$$P(x) = (x - 1)(x - 2)h(x) + (ax + b)$$

$$P(1) = a + b = 5$$

$$P(2) = 2a + b = 7$$

$$a = 2, \quad b = 3$$

Therefore, remainder is  $(2x + 3)$

**Answer:**

## **Method 2**

After division by  $(x - 1)(x - 2)$  the remainder must be of the form  $(ax + b)$

if the quotient is  $q(x)$ , then the polynomial

$$P(x) = (x - 1)(x - 2)q(x) + (ax + b)$$

$$= (x - 1)\{(x - 2)q(x) + a\} + a + b \Rightarrow a + b = 5$$

$$P(x) = (x - 1)(x - 2)q(x) + (ax + b)$$

$$= (x - 2)\{(x - 1)q(x) + a\} + 2a + b \Rightarrow 2a + b = 7$$

$$a = 2, \quad b = 3$$

Therefore, remainder is  $(2x + 3)$

# Golden Rules

If  $\frac{p(x)}{(x-a)} = q(x)$  with remainder  $r(x)$

Then  $p(x) = (x-a)q(x) + r(x)$

The Remainder Theorem says that we can restate the polynomial in terms of divisor, and then evaluate the polynomial at  $x = a$

$$\begin{aligned} p(a) &= (a-a)q(a) + r(a) \\ &= (0)q(a) + r(a) \\ &= 0 + r(a) \\ &= r(a) \end{aligned}$$

*Traditional or Online classes*

***Mr. S.V. Swarnaraja***

*(Team Leader, Marking Examiner & Author)*

*Mobile: +94 777 304755*

*email: swa@swanash.com*

***www.swanash.com***