

FINAL EXAM
 LAST YEAR

Question 2

a) Simplify the following expressions into the lowest term.

(i) $\frac{2m}{3mn} \times \frac{6n}{4m^2}$

$= \frac{2\cancel{m}}{1\cancel{3}mn} \times \frac{\cancel{6}n^2}{2\cancel{4}m^2}$

$= \frac{\cancel{m}}{\cancel{m}\cancel{n}} \times \frac{\cancel{2}\cancel{n}}{\cancel{2}m^2}$

$= \frac{1}{m^2}$

$\frac{2m}{3mn} \times \frac{6n}{4m^2}$

(ii) $(2y-1) - 4y(x-2)$

$= 2y - 1 - 4yx + 8y$

$= 2y + 8y - 1 - 4yx$

$= 10y - 1 - 4yx$

b) Factorize the given expressions completely.

(i) $\frac{6x+12}{(x^2-3x+2)}$

$= 6x \times 2 + 6 \times 2$
 $= 6(x+2)$

$A=1 \quad B=3 \quad C=2$
 $A \times C = 2 \quad \underline{(x-2)}$
 1×2
 $(x-1) \quad (x-2)$

$= \frac{6(x+2)}{(x-1)(x-2)}$

(ii) $\frac{3x^2+4x+1}{(x+1)}$

$3x+4-1$
 $x-1 \sqrt{3x^2+4x+1}$
 $3x^2+4x+1$
 $-) 3x^2-3x$
 $7x+1$
 $-) 7x-7$
 8

$= 3x+4-1$
 $3x+7$

C) Simplify the following expression

$$\frac{(2a^2 + a)}{2b} \div \frac{(6a + 3)}{7b}$$

$$= \frac{2a^2 + a}{2b} \times \frac{7b^3}{6a + 3}$$

$$= 2a^2 + a (6a + 3) \times 2b (7b^3)$$

$$= 12a^3 + 6a^2 + 6a^2 + 3a \times 14b^4$$

$$= 12a^3 + 12a^2 + 3a \times 14b^4$$

$$\begin{aligned} & \frac{2a^2 + a}{2b} \times \frac{7b}{6a + 3} \\ &= \frac{2a^2 + a}{6a + 3} = \frac{a(2a + 1)}{3(2a + 1)} \\ &= \frac{a}{3} \end{aligned}$$