

Final Exam

(OSIPPI8F1033)

Question 2

a) lowest term

$$i) \frac{k+2}{k+6} \times \frac{k}{2}$$

$$= \frac{2(k+2) + k(k+6)}{2(k+6)}$$

$$= \frac{2k + 4 + k^2 + 6k}{2k + 12}$$

$$= \frac{k^2 + 8k + 4}{2k + 12}$$

$$ii) \frac{3x^2m}{6xm^2}$$

$$\frac{3x^2m}{2xm^2}$$

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

b) simplify

$$i) \frac{k^2 + 2km + m^2}{(k+m)^2}$$

$$a^2 + 2ab + b^2 = (a+b)^2$$

$$\frac{(k+m)^2}{(k+m)^2} = 1$$

$$ii) \frac{b+2}{b^2 + 9b + 20} \left(\frac{b+5}{b^2 - 4} \right)$$

$$\begin{array}{l} 1 \times 20 \\ 2 \times 10 \\ 4 \times 5 \end{array}$$

$$= \frac{\cancel{b+2}}{(b+4)(\cancel{b+5})} \times \frac{\cancel{b+5}}{(b-2)(\cancel{b+2})}$$

$$= \frac{1}{(b+4)(b-2)}$$

c) Factorize

i) $x^2 - 4x - 32$

$a=1 \quad b=-4 \quad c=-32$

$$\frac{-b \pm \sqrt{b^2 - 4(ac)}}{2(a)}$$

$$\frac{-(-4) \pm \sqrt{4^2 - 4(1)(-32)}}{2(1)}$$

$$\frac{4 \pm \sqrt{16 + 128}}{2} = \frac{4 \pm \sqrt{144}}{2}$$

$$= \frac{4 \pm 12}{2}$$

$$= \frac{4+12}{2} \quad \text{or} \quad \frac{4-12}{2}$$

$$= 8 \quad \checkmark$$

$$= -4 \quad \checkmark$$

$(x-8) \text{ or } (x+4)$

Formula
↓
Penggunaan

faktor dalam
 $(x-8)(x+4)=0$

$$x^2 - 4x - 32 = 0$$

$$(x-8)(x+4) = 0$$

$$x-8=0 \quad \text{or} \quad x+4=0$$

$$x=8$$

$$x=-4$$

$$k-A=0$$

$$k=0$$

$$k+4=0$$

$$k=-4$$

ii) $\frac{k^2 - 4k - 5}{k-4} \times \frac{k+1}{k-4}$

$$\frac{k^2 - 4k - 5}{k-4} \times \frac{k+1}{k-4}$$

$$\frac{k(k-4)-5}{1} \times \frac{1}{k+1}$$

$$k(k-3)-5$$

$$k^2 - 3k - 5$$

$$k=-5$$

$$\frac{(k-5)(k+1)}{k-4} \div \frac{k+1}{k-4}$$

$$= \frac{(k-5)(k+1)}{k-4} \times \frac{k-4}{k+1}$$

$$= k-5$$