

King Fahd University of Petroleum and Minerals
Per-Year Math Program
Math 001 - Term 061
Recitation hour (P5 & P6)

Question1

Simplify:

$$a) \frac{x}{x-4} - \frac{x^2+6x+9}{x^3+27} \div \frac{x^2+7x+12}{x^3-3x^2+9x}$$

$$b) \frac{xy^{-2} - 4x^{-1}}{y^{-1} - 2x^{-1}}$$

$$c) \frac{x-1 + \frac{2}{x-4}}{x+3 + \frac{6}{x-4}}$$

Question2

Write the number $\frac{(\sqrt{-4})i^{23} - \sqrt[3]{-27}}{1+i^{17}}$ in **standard form**.

Question3

Find the **conjugate** of $z = \frac{\sqrt[3]{-27} - \sqrt{-16}}{\sqrt{-3}\sqrt{-27}}$ and write in standard form.

Question4

TRUE or FALSE ?

1. The expression $(\sqrt{-2} - \sqrt{2})(\sqrt{-2} + \sqrt{2})$ is equal to -4 .

2. The expression $\frac{1}{x^{-1} + y^{-1}}$ is equal to $x - y$.

3. The expression $(x^{-1} + y^{-1})^{-1}$ is equal to $x + y$.

4. The expression $i^{60} + i^{61} + i^{62} + i^{63}$ is equal to 0.

5. The expression $\left(\frac{1+i}{1-i}\right)^{18}$ is equal to -1 .