

King Fahd University of Petroleum and Minerals
Math Prep-Year Program
Math 001-Term 062 Chap. P

QUESTION 1 Given $(2x - y)^2(x - y) - (x + y)^3$, find the coefficient of x^2y

ANS: -11

QUESTION 2. Factor: $x^2 - 4xy + 4y^2 - x^3 + 8y^3$

DONE IN CLASS

QUESTION 3. Simplify $\frac{x^3 - 1}{x^2 + x + 1} - \frac{x^2 - 1}{x - 1} \div \frac{x - 2}{-x^2 + 5x - 6}$

DONE IN CLASS

QUESTION 4 Simplify: $(a^{-2} - b)^{-1}$

ANS: $\frac{a^2}{1 - a^2b}$

QUESTION 5 Find the CONJUGATE of the complex number: $\frac{(i - 1)^2 + 1}{i - \sqrt{-1}\sqrt{-4}}$

ANS: $\frac{3i}{5}$

QUESTION 6 $\frac{x^2}{x^2 - x} - \frac{3x^2 + x - 2}{3x^2 - 5x + 2} \div \frac{2x^2 + x - 1}{2x^2 - 3x + 1}$ simplifies to:

DONE IN CLASS

QUESTION 7 The expression $\frac{2^{n+4} - 2(2^n)}{2(2^{n+3})}$ simplifies to:

ANS: $\frac{7}{8}$

QUESTION 8 The expression $\sqrt[3]{\sqrt{64x^{10}y^6}}$ simplifies to:

ANS: $2xy\sqrt[3]{x^2}$

QUESTION 9 If $Z = \frac{(1-i)^2}{\sqrt{-2}\sqrt{-8} - i^{203}}$, find $Z + \bar{Z}$

ANS: $\frac{-4}{17}$

QUESTION 10 Write the following without absolute value notation:

$$\left| \left| x - \frac{1}{4} \right| - \left| x - \frac{1}{2} \right| \right| ; 0 < x < \frac{1}{5}$$

ANS: $\frac{1}{4}$

QUESTION 11 Simplify:

$$\left(\frac{(x-y)^2(2z^4)}{[z(x-y)]^3} \right)^2$$

ANS: $\frac{4z^6}{(x-y)^2}$