

King Fahd University of Petroleum and Minerals
Prep-Year Math Program
Math (001)-Term (131)
Recitation R.4
Answered by Sayed Omar

Question 1: Find $\sqrt{25^2 - 24^2}$ **Answer:** 7

Question 2: Factor the following completely :

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| <p>(a) $2x^3y - 8(xy)^2 + 6y^3$</p> <p>(b) $x(2x + 3) - 2$</p> <p>(c) $(2a - b)^2 - (a + 2b)^2$</p> | <p>(d) $9x^2 + 3x - y - y^2$</p> <p>(e) $x^6 + 7x^3 - 8$</p> <p>(f) $4x^3 - 8x^2y - xy^2 + 2y^3$</p> |
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Answer:

- (a): $2y(x^3 - 4x^2y + 3y^2)$
- (b): $(2x - 1)(x + 2)$
- (c): $(3a + b)(a - 3b)$
- (d): $(3x - y)(3x + y + 1)$
- (e): $(x + 2)(x^2 - 2x + 4)(x - 1)(x^2 + x + 1)$
- (f): $(x - 2y)(2x + y)(2x - y)$

Question 3: Find all values of k such that $16x^2 + kx + 4$ is a perfect square.

Answer: $k = \pm 16$

Question 4: One factor of the polynomial $x^2y^2 - 1 - 2xyz + z^2$ is

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| <p>(a) $(xyz - 1)$</p> <p>(c) $(xy - z - 1)$</p> <p>(e) $(x + y + z + 1)$</p> | <p>(b) $(xy + z + 1)$</p> <p>(d) $(xy + z - 1)$</p> |
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Answer: (c): $(xy - z - 1)$

Question 5: Factorization of: $10x^3y - 15xy^3 + 25x^2y^2$ is equal to:

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|---|---|
| <p>(a) $5xy(2x + y)(x - 3y)$</p> <p>(c) $5xy(2x - y)(x + 3y)$</p> <p>(e) $5(2x^2 - y^3)(x + 3y)$</p> | <p>(b) $10xy(x - y)(x + 3y)$</p> <p>(d) $5xy(x - y)(2x + 3y)$</p> |
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Answer: (c): $5xy(2x - y)(x + 3y)$

Question 6: Factor $x^4 - x^2 + 16$. (Hint: add and subtract a term)

Answer: $(x^2 + 4 + 3x)(x^2 + 4 - 3x)$