

KING FAHD UNIVERSITY OF PETROLUUM AND MINERALS
Faculty of Science, Prep-Year Math Program
Math 001 - Term 062

1. The far left and far right behavior of the graph of the polynomial

$$P(x) = -2x(x+3)(x-1)^2(2-x)^3$$

are one of the following:

- a) goes down to its far left and up to its far right
 - b) goes up to its far left and up to its far right
 - c) goes up to its far left and down to its far right
 - d) goes down to its far left and down to its far right
 - e) non of the above
2. The polynomial $P(x) = 2x^5 - x^2 - 3x + 5$ has the following numbers of negative real zeros:
- a) 2
 - b) 3
 - c) 1
 - d) 4
 - e) 0
3. If $P(x) = x^{105} - x^{10} - 2x + 1$ is divided by $x - i$, then the remainder is
- a) $2 + 2i$
 - b) $2 + i$
 - c) i
 - d) $2 - i$
 - e) $-2 + i$
4. If $x = -2$ is a zero with multiplicity 2 of the polynomial $P(x) = 3x^4 + 6x^3 - 6x^2 + Ax + B$, then find the value of A and B

5. Find the equation of the polynomial $P(x)$ of degree 4 that has the graph given below.



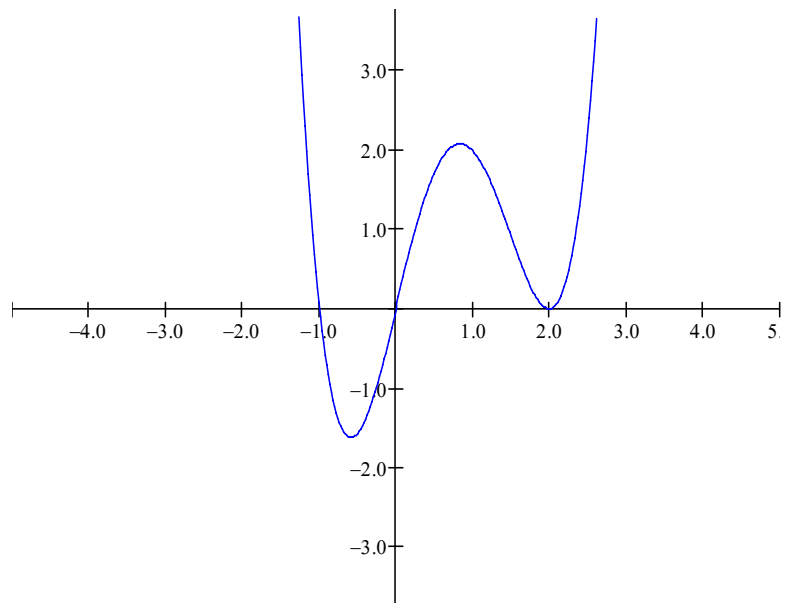
6.

7. If $P(x) = 2x^4 + 3x^3 + 2x^2 - 3x - 4$, then

- determine the x -intercept(s) of the graph of P .
- write $P(x)$ in the factored form
- determine where the graph of P will cross the x -axis and where the graph will intersect but does not cross the x -axis.

8. Which one of the following polynomials matches the graph:

- $P(x) = x(x+1)(x-2)^2$
- $P(x) = -x^2(x+1)(x-2)$
- $P(x) = -x(x+1)^2(x-2)$
- $P(x) = (x+1)^2(x-2)^2$
- $P(x) = -x(x+1)(x-2)^2$



9. If the remainder of dividing $P(x) = x^4 - 8x^2 - kx + 1$ by $x + 2$ is 3. Then $P(-1)$ is equal to:
a. 6 b. 3 c. 4 d. -3 e. 0

10. If $P(x) = x^{105} - x^{10} - 2x + 1$ is divided by $(x - i)$ then the remainder is:
a. $-2 + i$ b. $2 + i$ c. i d. $2 + 2i$ e. $2 - i$

11. The polynomial $P(x) = 3x^3 + 7x^2 + 3x + 7$ has at least one real zero in the interval:
a. $[-1, 0]$ b. $[-2, -1]$ c. $[-3, -2]$ d. $[0, 1]$ e. $[1, 2]$

12. If $(1 - i)$ is a zero of $P(x) = x^4 - 7x^3 + 18x^2 - 22x + K$, then the value of K is equal to:
a. -12 b. 12 c. $\frac{1}{12}$ d. 0 e. $\frac{-1}{12}$