King Fahd University of Petroleum and Minerals
Faculty of Science – Prep -Year Math Program
Math 003 - Term 032
Worksheet (3.1 & 3.2)

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1. If $P(x)=123x^4-124x^3+124x^2+122x-3$, then $P(\frac{1}{123})=$

a) -2
b) $-9/2$
c) $9/5$
d) 7
e) $10/3$

2. If $i=\sqrt{-1}$, then **remainder** when $P(x)=x^{103}-x^{102}+2x^{101}+x^{100}-2$ is divided by $x-i$ is equal to

a) -1
b) 1
c) 0
d) $-i$
e) i

3. If $x+2$ is a factor of the polynomial $P(x)=x^5-2x^3+5x^2-kx+2$, then k is equal to

a) -3
b) -2
c) 3
d) 2
e) 0

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

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

are one of the following:

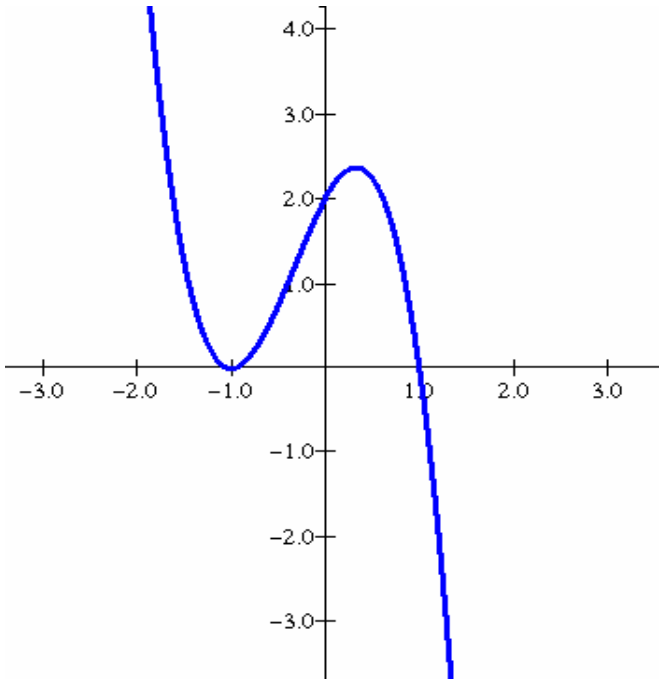
a) goes down to it far left and up to its far right
b) goes up to its far left and up to its far right
c) goes up to its far left and down to its far right
d) goes down to its far left and down to its far right
e) non of the above

5. The polynomial $P(x) = x^4 + 2x^3 - 8x^2 - 20x - 20$ has at least one real zero between

   a) 0 *and* 1
   b) 1 *and* 2
   c) 2 *and* 3
   d) 3 *and* 4
   e) 4 *and* 5

6. Which one of the following polynomial has the graph given below

   a) $P(x) = -2(x+1)^2(x-1)$
   b) $P(x) = -2(x-1)^2(x+1)$
   c) $P(x) = (x+1)^2(x-1)+2$
   d) $P(x) = 2(x-1)^2(x+1)$
   e) $P(x) = (x+1)^2(x-1)-2$



7. The graph of the equation $f(x) = -2x^4 + 8x^2$ is below the x-axis in the interval(s):

   a) $(-2,0) \cup (0,2)$
   b) $(-2,2)$
   c) $(-\infty,-2) \cup (0,2)$
   d) $(-\infty,-2) \cup (2,\infty)$
   e) $(-2,0) \cup (2,\infty)$