

Name _____ Date _____

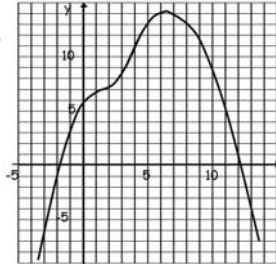
MCB4U Polynomials Assignment (Unit 1)

/31 K&U
/8 APP
/5 COM
/4 TIPS

Part 1: Answer each of the following in the space provided. **[5 MARKS K&U]**

1. If the function $y = ax^3 + bx^2 + cx + d$ passes through the origin, then ____ must equal zero? (____)
A. a B. b C. c D. d E. all the above

2. What type of polynomial function is graphed at the right? (____)
A. linear B. quadratic C. cubic
D. quartic E. quintic



3. What are the zeros of the graph pictured above right? (____)
A. -2, 12 B. 0 C. 2, -12, 5 D. 5 E. -2, 5, 12

4. For the function $y = (x + a)(x + b)(x + c)(x + d)$, how many of each root exist for this graph (if a, b, c, and d are all different)? (____)
A. 0 B. 1 C. 2 D. 3 E. 4

5. For a sixth order polynomial, which row of finite differences will be constant? (____)
A. 1 B. 3 C. 5 D. 7 E. none of these

Part 2: Show all work. Do your work on this test paper in the space provided. 5 communication marks are throughout the assignment.

1. Graph $y = x^4 - 2x^3 + 5x - 12$ with a graphing calculator and determine
a) The domain and range **[2 MARKS K&U]**
b) the number and type of zeros (i.e. real, complex) **[2 MARKS K&U]**
c) the number and type of turning points **[2 MARKS K&U]**
2. What is the remainder if $4x^4 - 3x^2 + 6x + 9$ is divided by $x - 2$? **[2 MARKS K&U]**

3. Solve completely by factoring.

a) $2x^3 + 13x^2 + 17x - 12 = 0$ [4 MARKS K&U]

b) $2x^4 + 7x^3 + 8x^2 + 12x + 16 = 0$ [4 MARKS K&U]

4. Determine k so that $x - 1$ is a factor of $2x^4 + x^3 + (kx)^2 + (k + 4)x - 9$.

[4 MARKS TIPS]

5. Divide the following and write the division statement: $(6x^3 + x^2 - 19x + 8) \div (2x - 3)$.

[4 MARKS K&U]

6. Solve $2x^2 - 9x - 5 \leq 0$, without using technology. [4 MARKS K&U]

7. Using a graphing calculator, solve the non-factorable inequality

$x^4 + 4x^3 - 8x^2 + x - 11 > 0$ to the nearest hundredth. [2 MARKS K&U]

8. Use finite differences to write an equation for each polynomial function.

a) [4 MARKS App]

x	y
-3	44
-2	23
-1	10
0	5
1	8
2	19
3	38

b) [4 MARKS App]

x	y
-3	105
-2	29
-1	7
0	3
1	5
2	25
3	99
4	287