

KED

## Check-in Quiz Section 3.1-3.2: Polynomial Graph Characteristics, Dividing Polynomials, & Factoring Review

Complete the following questions **SHOWING ALL WORK** and steps where applicable.

1. Complete the following characteristics for the following function:

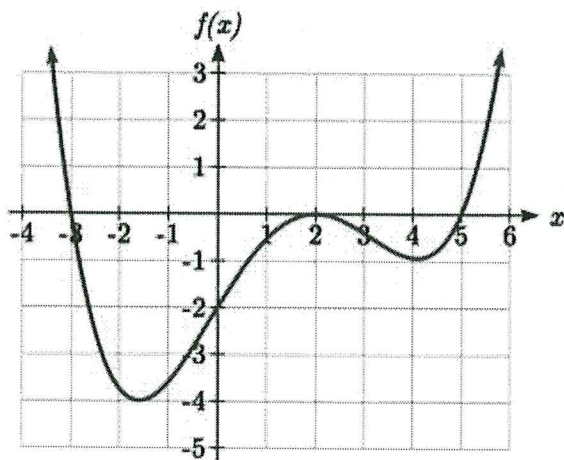
(0.25 marks each = 1.5 marks)

$$f(x) = -x^4 + 2x^2 - 5x + 7$$

1. Degree =	4
2. Leading Coefficient =	-
3. Behaviour =	down into QIII + down into QIV
4. Possible # of turning points =	1 or 3
5. Possible # of x-intercepts =	0 - 4
6. Coordinate of y-intercept =	(0, 7)

2. Answer the questions about the graph of the polynomial function shown:

(0.5 marks each = 2 marks)



a) What are all possible degrees this function can have?

$n \geq 4$  even 4, 6, 8, ...

b) How many x-intercepts does this function have?

3

c) What is the domain and range?

$\{x | x \in \mathbb{R}\}$   $\{y | y \geq -4\}$

3. Divide the polynomial  $P(x) = 3x^3 + 2x^2 - 5x + 7$  by the binomial  $x - 2$

You can do this by synthetic or long division.

(2 marks)

Clearly state your final answer and put a BOX around it for full marks.

$$\begin{array}{r|rrrr} x-2 & 3x^3 & +2x^2 & -5x & +7 \\ -2 & 3 & 2 & -5 & 7 \\ - & & -6 & -16 & -22 \\ \hline x & 3 & 8 & 11 & 29 \end{array}$$

$$3x^2 + 8x + 11 + \frac{29}{x-2}$$

4. Factor the following:

(0.5 marks each = 1.5 marks)

Put a BOX around your final answer.

a)  $x^2 + 7x - 30$

$$(x+10)(x-3)$$

b)  $2x^2 + 11x + 5$

$$(2x+1)(x+5)$$

c)  $3x^2 - 75$

$$3(x^2 - 25)$$
$$3(x+5)(x-5)$$