

Adv. Algebra 2 – Concept Quiz

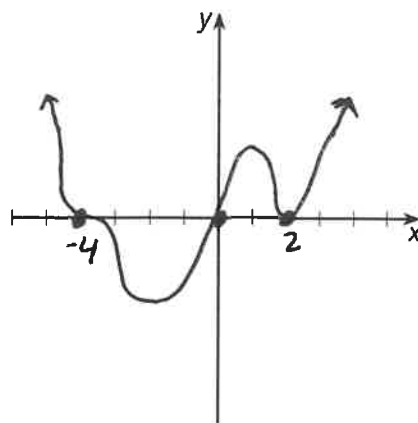
Form A

Name: *key
Date: _____ Period: _____

12. Graphs of Polynomials

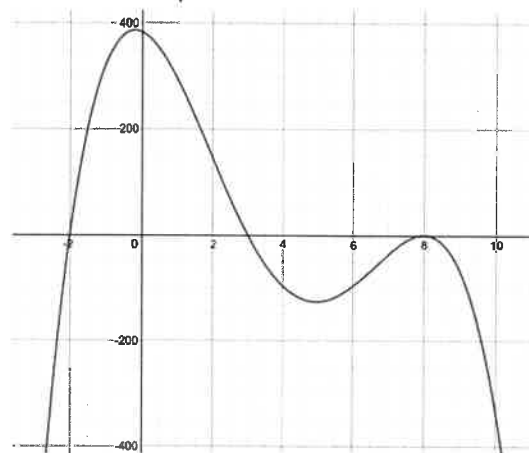
1. Let $f(x) = x(x-2)^2(x+4)^3$ be a polynomial function.
a. Sketch a graph of the polynomial.

Zeros: $0, +2, -4$
 $n=1, m=2, m=3$
 Degree: Even
 L.C.: positive \uparrow \uparrow



2. The graph of a polynomial function f is shown. Circle all the true statements about the polynomial.

- a. The degree of the polynomial is even.
 b. The leading coefficient is negative.
 c. The constant term of the polynomial is negative.
 d. The polynomial f has factor of $(x-8)$ with a multiplicity of 2.



13. Dividing Polynomials

Divide the following polynomials using a different method (long division, synthetic division, or a diagram) for each polynomial.

a) $(x^3 - 2x^2 - 6x - 3) \div (x - 4)$

$$\begin{array}{r|rrrr} 4 & 1 & -2 & -6 & -3 \\ & & 4 & 8 & 8 \\ \hline & 1 & 2 & 2 & 5 \end{array}$$

$$\boxed{x^2 + 2x + 2 + \frac{5}{x-4}}$$

b) $(7x^4 + 43x^3 - 83x^2 + 98x - 56) \div (x^2 + 7x - 7)$

$$\begin{array}{r} 7x^2 - 6x + 8 \\ \hline x^2 + 7x - 7 \overline{) 7x^4 + 43x^3 - 83x^2 + 98x - 56} \\ \underline{-7x^4 - 49x^3 + 49x^2} \\ -6x^3 - 34x^2 + 98x \\ \underline{6x^3 + 42x^2 - 42x} \\ 8x^2 + 56x - 56 \\ \underline{-8x^2 - 56x + 56} \\ 0 \end{array}$$

$$\boxed{7x^2 - 6x + 8}$$

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Form B

Name: *key
 Date: _____ Period: _____

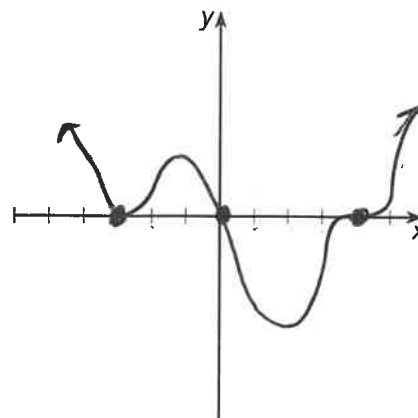
12. Graphs of Polynomials

1. Let $f(x) = x(x-4)^3(x+3)^2$ be a polynomial function.
 a. Sketch a graph of the polynomial.

Zeros: $0, 4 \text{ m}3, -3 \text{ m}2$

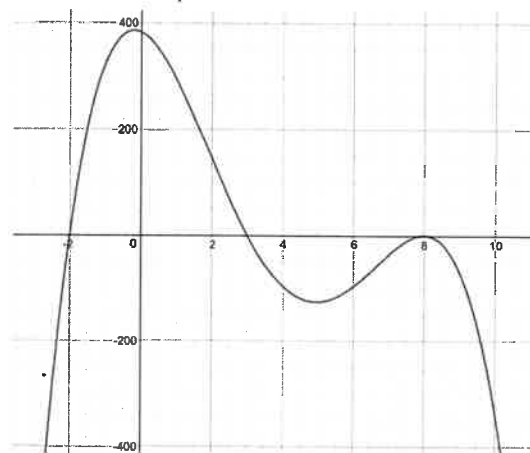
Degree: Even

L.C.: + ↖ ↗



2. The graph of a polynomial function f is shown. Circle all the true statements about the polynomial.

- a. The degree of the polynomial is odd.
 b. The leading coefficient is positive.
 c. The polynomial f has factor of $(x-8)$ with a multiplicity of 3.
 d. The constant term of the polynomial is positive.



13. Dividing Polynomials

Divide the following polynomials using a different method (long division, synthetic division, or a diagram) for each polynomial.

a) $(x^3 + 10x^2 + 20x - 20) \div (x + 5)$

$$\begin{array}{r} -5 \overline{) 1 \quad 10 \quad 20 \quad -20} \\ \underline{-5 \quad -25 \quad 25} \\ 1 \quad 5 \quad -5 \quad 5 \end{array}$$

$$\boxed{x^2 + 5x - 5 + \frac{5}{x+5}}$$

b) $(7x^4 - 58x^3 + 3x^2 + 50x + 6) \div (x^2 - 8x - 1)$

$$\begin{array}{r} 7x^2 - 2x - 6 \\ x^2 - 8x - 1 \overline{) 7x^4 - 58x^3 + 3x^2 + 50x + 6} \\ \underline{-7x^4 + 56x^3 + 7x^2} \\ -2x^3 + 10x^2 + 50x \\ \underline{+2x^3 - 16x^2 - 2x} \\ -6x^2 + 48x + 6 \\ \underline{6x^2 - 48x - 6} \\ 0 \end{array}$$

$$\boxed{7x^2 - 2x - 6}$$