

Name: _____ Hour: _____ Date: _____

NOTES: Section 5.8 – Analyze Graphs of Polynomial Functions

Goals: #1 - I can graph a polynomial function by including x - and y -intercepts, and coordinates of local max/min.

#2 - I can identify the x -intercepts (real zeros), local max/min, and least degree, from a graph of a polynomial.

Homework: Lesson 5.8 Worksheet



Warm Up:

1. Find all zeros of the polynomial function $f(x) = x^4 + x^3 + 2x^2 + 4x - 8$

Exploration #1: Work with a partner and answer the following questions.

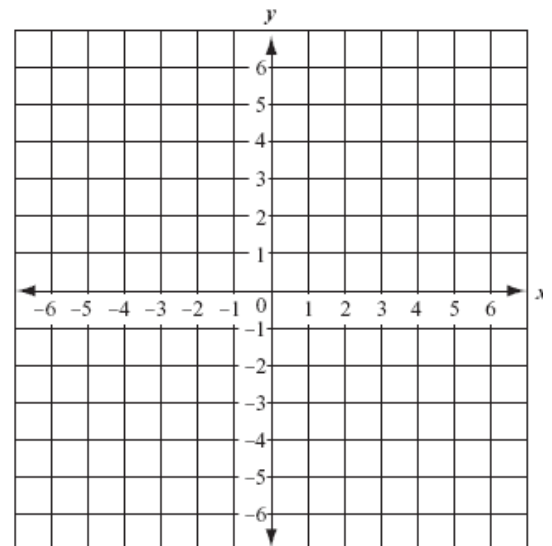
$$f(x) = \frac{1}{6}(x + 3)(x - 2)^2$$

1. What are the x -intercepts of this function?
2. What is the y -intercept of this function?
3. Describe the end behavior of the graph of the function.

$$f(x) \rightarrow \text{_____ as } x \rightarrow -\infty$$

$$f(x) \rightarrow \text{_____ as } x \rightarrow +\infty$$

4. Using this information, graph the function below:



Name: _____ Hour: _____ Date: _____

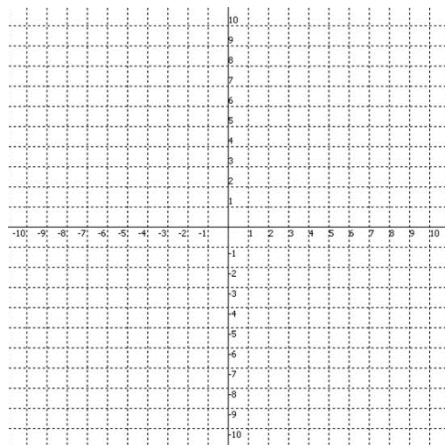
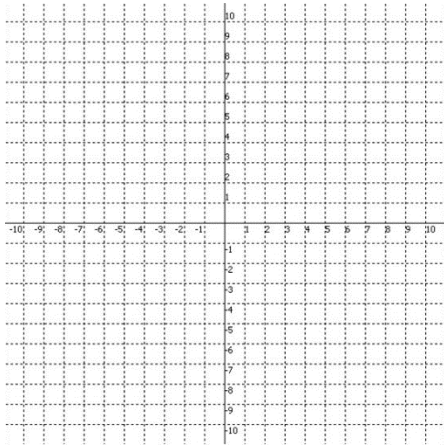
Notes:

- _____: _____ is a _____ of the polynomial function f .
- _____: _____ is a _____ of the polynomial function f .
- _____: _____ is a _____ of the polynomial equation $f(x) = 0$.
- _____: If _____ is a real number, _____ is an _____ of the graph of the polynomial function f .

Example #1: Graph the function. Identify all intercepts. You must plot points between and beyond each intercept. Use the x/y table to identify points on the graph.

1. $h(x) = 0.25(x + 2)(x - 2)(x - 3)$

2. $f(x) = x^3 - x^2 - 17x - 15$



x -intercept(s): _____

x -intercept(s): _____

y -intercept: _____

y -intercept: _____

x								
y								

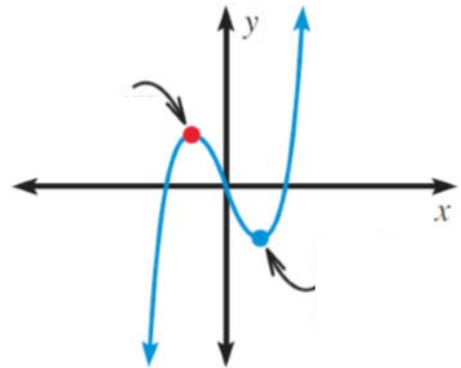
x								
y								

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Notes:

Another important characteristic of graphs of _____
is that they have _____ corresponding to
_____ and _____ values.

- The _____ and _____ values are the _____ of the _____ of the graph.



Example #2: Estimate the coordinates of each turning point and state whether each corresponds to a local maximum or a local minimum. Then estimate all real zeros and determine the least degree the function can have.

