Name: _____ Date: _____

Learning Goal 3.3	Solving equations algebraically and graphically.

More Questions - Solutions

1. Consider the functions and without the use of technology, determine the following attributes. Sketch the graph, then compare to desmos.

- Degree
- Leading Coefficient
- $y-$ intercept value
- $x-$ intercept value(s)
- Interval(s) where the function is positive
- Interval(s) where the function is negative

a. $y=(x-2)^3(x+1)$

• Degree 4	• Leading Coefficient 1
• $y-$ intercept value $y=-8$	• $x-$ intercept value(s) $x=-1,2$
• Interval(s) where the function is positive $\{x\|x<-1, x>2, x\in\mathbb{R}\}$	• Interval(s) where the function is negative $\{x\|-1<x<2, x\in\mathbb{R}\}$

b. $g(x)=(x-1)(x+2)(x+3)$

• Degree 3	• Leading Coefficient 1
• $y-$ intercept value $y=-6$	• $x-$ intercept value(s) $x=-3,-2,1$
• Interval(s) where the function is positive $\{x\|-3<x<-2, x>1, x\in\mathbb{R}\}$	• Interval(s) where the function is negative $\{x\|x<-3, -2<x<1, x\in\mathbb{R}\}$

c. $f(x)=-x^3+13x+12$

• Degree 3	• Leading Coefficient -1
• $y-$ intercept value $y=12$	• $x-$ intercept value(s) $x=-3,-1,4$
• Interval(s) where the function is positive $\{x\|x<-3, -1<x<4, x\in\mathbb{R}\}$	• Interval(s) where the function is negative $\{x\|-3<x<-1, x>4, x\in\mathbb{R}\}$

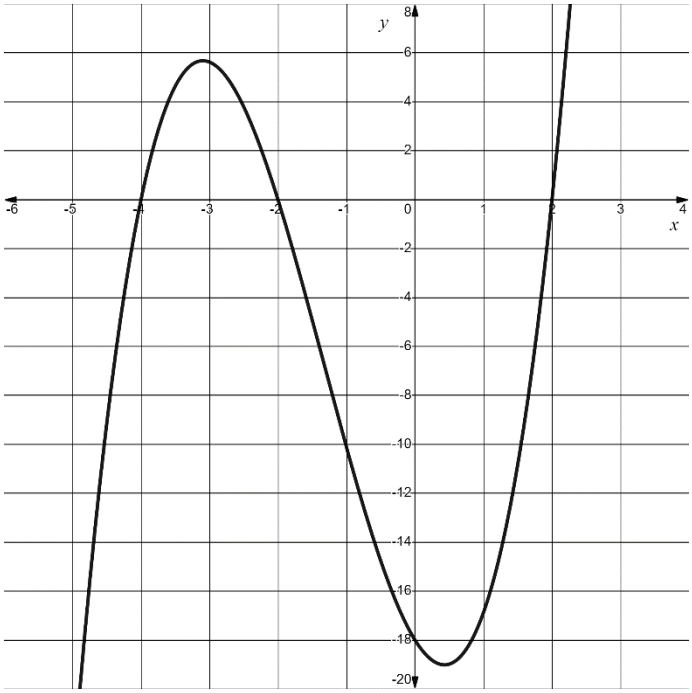
d. $y=-2x^3+6x-4$

• Degree 3	• Leading Coefficient -2
• $y-$ intercept value $y=-4$	• $x-$ intercept value(s) $x=-2,1$
• Interval(s) where the function is positive $\{x\|x<-2, x\in\mathbb{R}\}$	• Interval(s) where the function is negative $\{x\|x>-2, x\in\mathbb{R}\}$

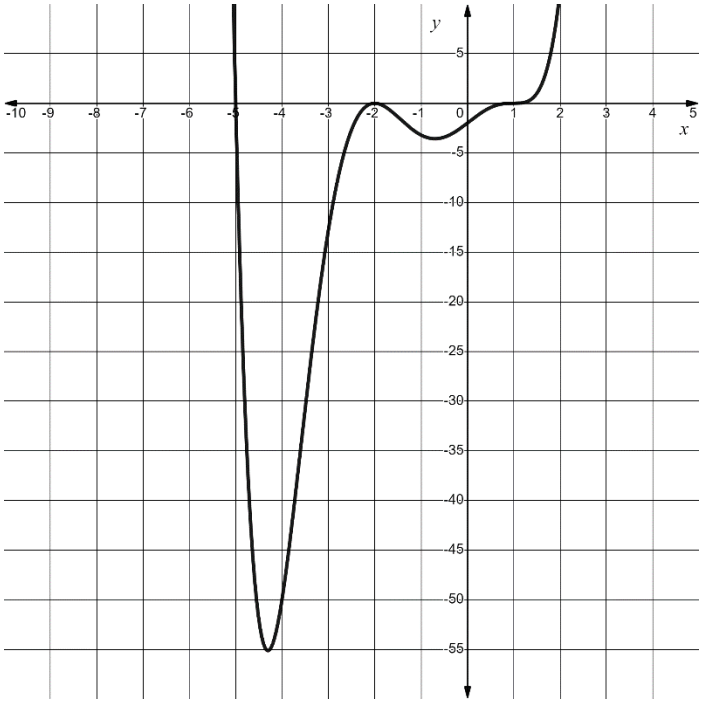
Assignment p. 147 # 3 – 6, 8, 10, 11, 20, 22 Quiz Next Day!

2. Find the attributes of the graphs below.

- Least possible degree
- Sign of the leading coefficient
- $x-$ intercepts and the factors of the function
- Intervals where positive and negative



- Least possible degree 3
- Sign of the leading coefficient $+$ve
- $x-$ intercepts and the factors of the function $x = -4, -2, 2$
  $(x+4), (x+2), (x-2)$
- Intervals where positive and negative
  $x > 0\ \{x| -4 < x < -2, x > 2, x \in \mathbb{R}\}$
  $x < 0\ \{x| x < -4, -2 < x < 2, x \in \mathbb{R}\}$



- Least possible degree 6
- Sign of the leading coefficient $+$ve
- $x-$ intercepts and the factors of the function $x = -5, -2, 1$
- $(x+5), (x+2), (x-1)$
- Intervals where positive and negative
  $x > 0\ \{x| x < -5, x > 1, x \in \mathbb{R}\}$
  $x < 0\ \{x| -5 < x < 1, x \in \mathbb{R}\}$