Before we begin, are there any questions from last day's work?

If not done last class, review solutions to Investigate 2.2.2 Parts 1-4.

Today's Learning Goal(s):

By the end of the class, I will be able to:

a) understand end behaviours, domain, range,
    sign of the leading coefficient, and maximum number of zeros
    for cubic and quartic functions.

Don't forget PPT 2.3.1

Cubic and Quartic Functions
2.3.1: True or False?   Date: ___**Feb.28, 2018**___

Read each of the following statements and circle True or False below.

1. A degree of four is the highest degree that a cubic function can have.   True ~~(False)~~

2. A cubic function has to have at least one x-intercept.   (True) False

3. The leading coefficient for the function $2x^3 - 5x^2 + 10x + 3$ is $2x^3$.   True (False)

4. The domain and range for all quartic functions will never be restricted.   True (False)

5. The domain and range for all cubic functions will never be restricted.   (True) False

6. A quartic function can have three x-intercepts.   (True) False

7. A cubic function can have four x-intercepts.   True (False)

8. A quartic function can resemble a quadratic function when graphed.   (True) False

9. Sometimes a quartic relation is not a function.   (True) False

10. As $x \to \infty$, $y \to -\infty$ and $x \to -\infty$, $y \to -\infty$ means the graph is starting on the left in quadrant 3 and ending on the right in quadrant 4.   (True) False

11. The leading coefficient does not influence the graph of a quartic function.   True (False)

12. The x-intercepts do not change when the graph is reflected on the x-axis.   (True) False

13. The function $y = (x - 3)^2 (x + 1)$ would have two x-intercepts.   (True) False

Note: 13 = True
14 = False

14. The function $y = (x - 2)(x - 2)(x - 2)$ would have three x-intercepts.   True (False)

15. The function $y = (x + 4)^2(x - 4)^2$ would create a "W" shape.   (True) False

16. The end behaviour for the function $y = -x^4 + 2x^3 - x^2 + 3x - 10$ would be as $x \to \infty$, $y \to \infty$ and $x \to -\infty$, $y \to \infty$.   True (False)

2.3.3: Properties of Cubic and Quartic Functions

Date: _____

1. Based on the graphs given, complete the chart.

	Sign of Leading Coefficient	Number of x-intercepts	End Behaviour	Domain	Range	Type of Function Cubic or Quartic?
		-2, 2 ↑ ↑ order 2				quartic
	-ve	2 -3, 0 order 2	$x \to \infty, y \to -\infty$ $x \to -\infty y \to \infty$	$\{x \in \mathbb{R}\}$	$\{y \in \mathbb{R}\}$	Cubic

pos.

pos

pos.

neg

-ve