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

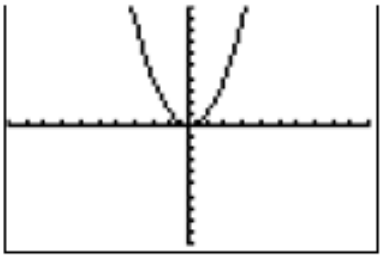
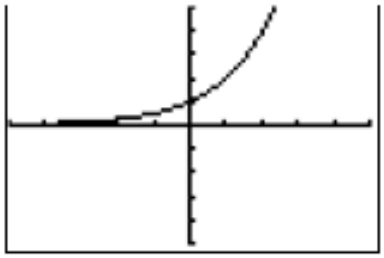
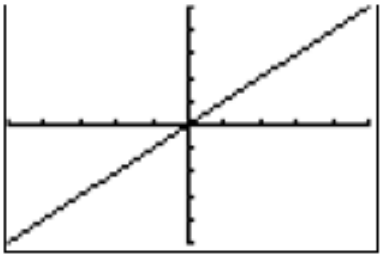
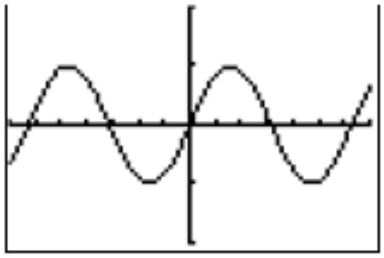
# Today's Learning Goal(s):

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

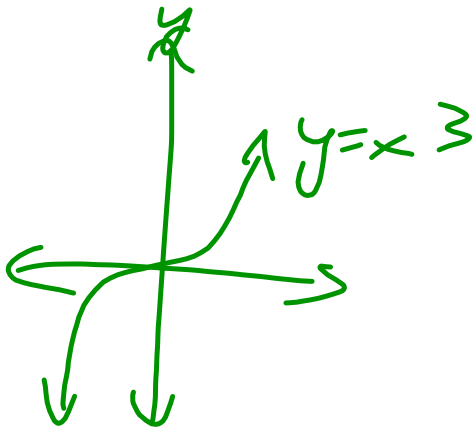
a) differentiate between the following types of functions:
linear, quadratic, cubic, quartic, exponential and sinusoidal

**Use Vertical White Boards?**

2.4.2: Polynomial Concept Attainment Activity Date: _____

| Examples | Non-Examples |
|---|---|
| $y = x$ | $y = \sqrt{x}$ |
| $y = 2x - 1$ | $y = 3x^{\frac{1}{2}} - x$ |
| $y = x(x^2 - 4)(x + 2)$ | $x = -6$ |
| $y = x^2$ | $x^2 + y^2 = 16$ |
| $y = (x - 2)^2 + 1$ | $h(x) = \sqrt[3]{x}$ |
| $y = -x^4 + \frac{1}{2}x^2 - 3$ | $y = \sin\beta$ |
| $y = -0.2(4x - 3)(x + 3)$ | $y = \frac{1}{x - 2}$ |
| $y = x^3 + 2x^2 - x + 11$ | $y = 2^x$ |
| $y = 4$ | $y = \frac{x - 1}{x^2 - x + 1}$ |
|  |  |
|  |  |


even +ve
odd +ve


y
y=x 3

***Today's work:*** *Complete 2.4.3 for the 5 remaining functions.*
*Complete 2.4.4*
***Read p.194***
*Complete pp. 197-198 #1, 2, 5*

## 2.4.4: Polynomial or Not?

Date: _____

Determine if each of the following equations/graphs represents a polynomial function or not. Justify your reasoning.

a) $f(x) = 2x^3 + x^2 - 5$

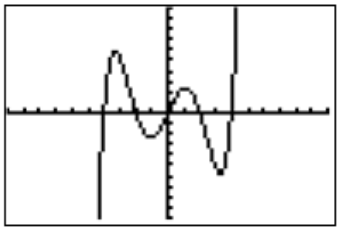
b) $f(x) = \sqrt{x+1}$

c) $f(x) = \cos x$

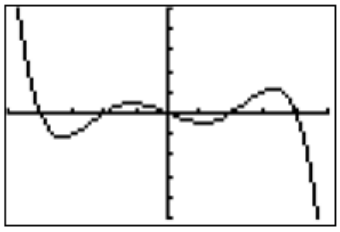
d) $f(x) = \dfrac{2}{x+3}$

e) $f(x) = x(x-1)^4$

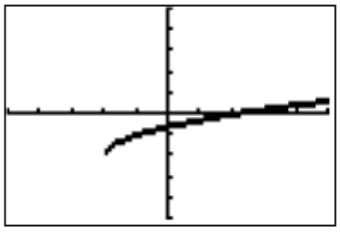
f)



g)

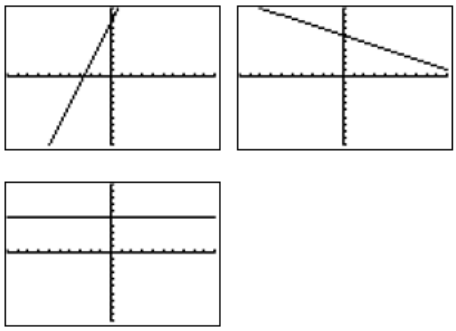


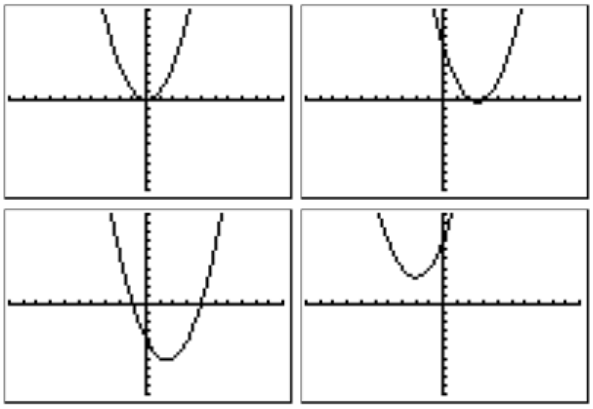
h)



pp. 197-198 1, 2, 5

## 2.4.3: Do you see what I see? – Sample Solutions

| Vocabulary Term | Picture |
|---|---|
| **Linear function** |  |
| Your Definition | Real Life Connection |
| *A relation between two variables that appears as a line when graphed.*<br><br>*The equation relating the two variables has degree one.* | *The relationship between earnings and number of hours worked for a person paid per hour.*<br><br>*The relationship between cost and the number of litres of gas purchased at a gas station.* |

| Vocabulary Term | Picture |
| --- | --- |
| **Quadratic function** |  |

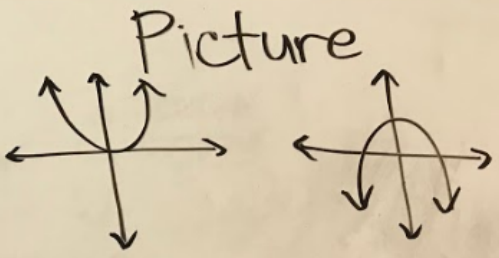
Vocabulary Term

Quadratic Function

DEFINITION

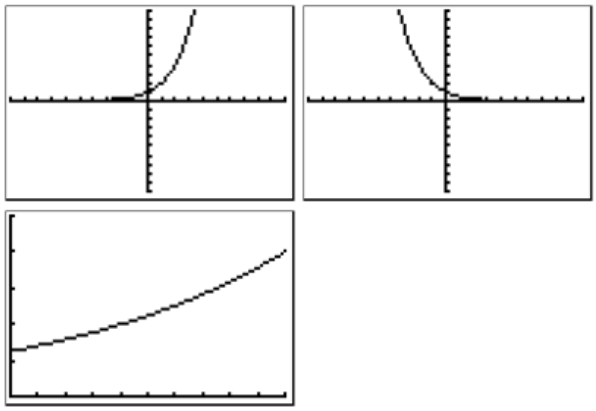
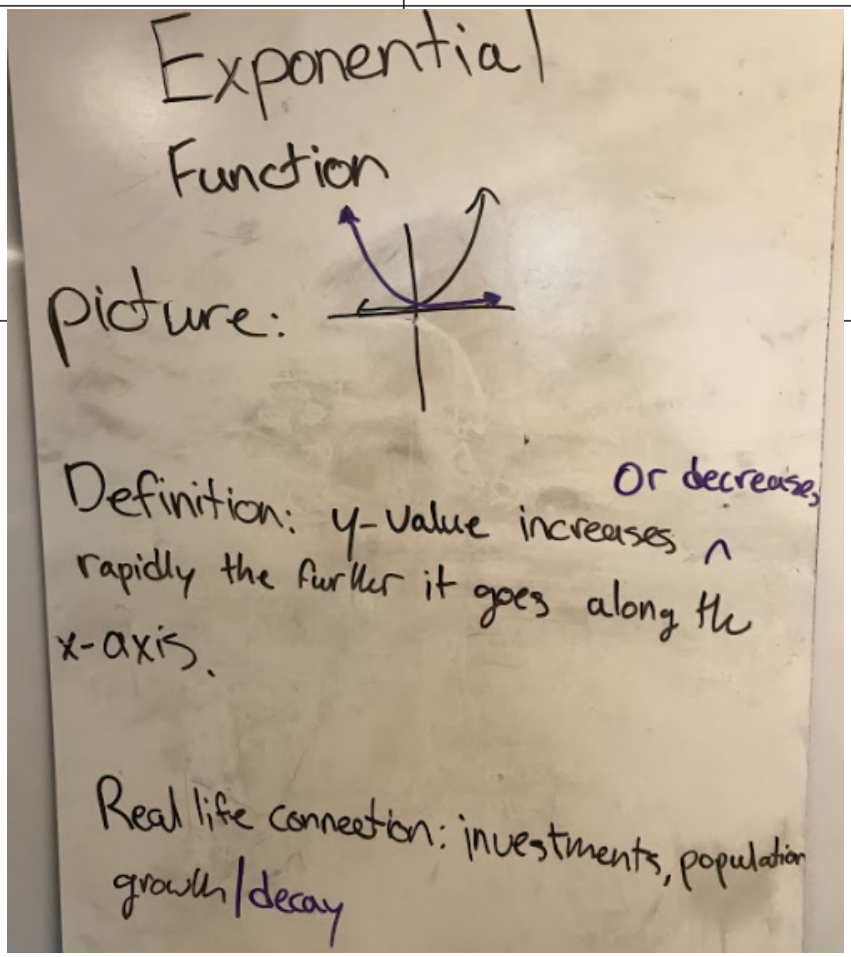
A Quadratic polynomial with a degree of 2.

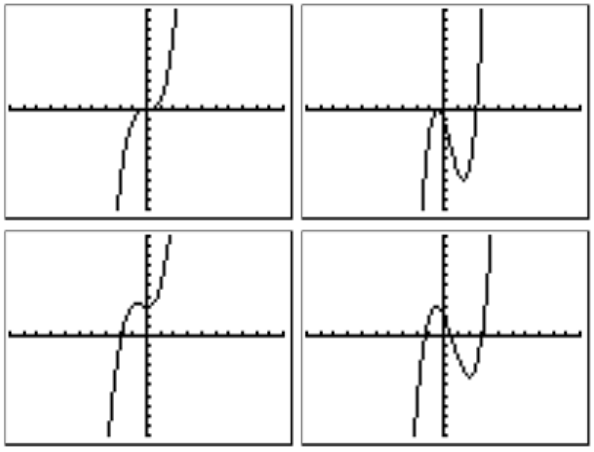
Picture

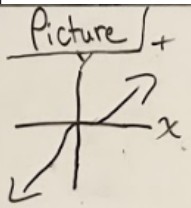
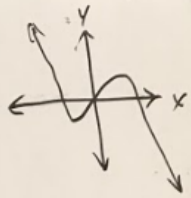


REAL LIFE CONNECTION

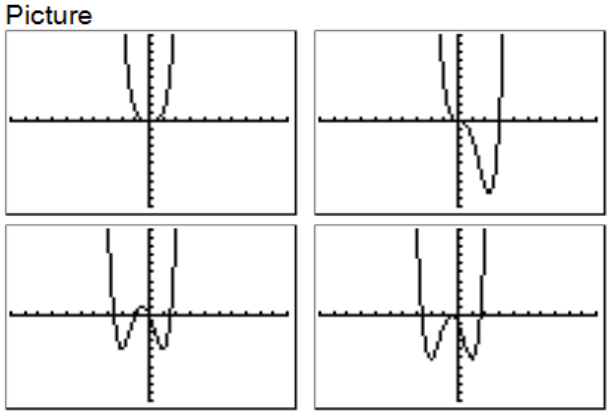
- THROWING A BALL
- Jumping OFF a Cliff

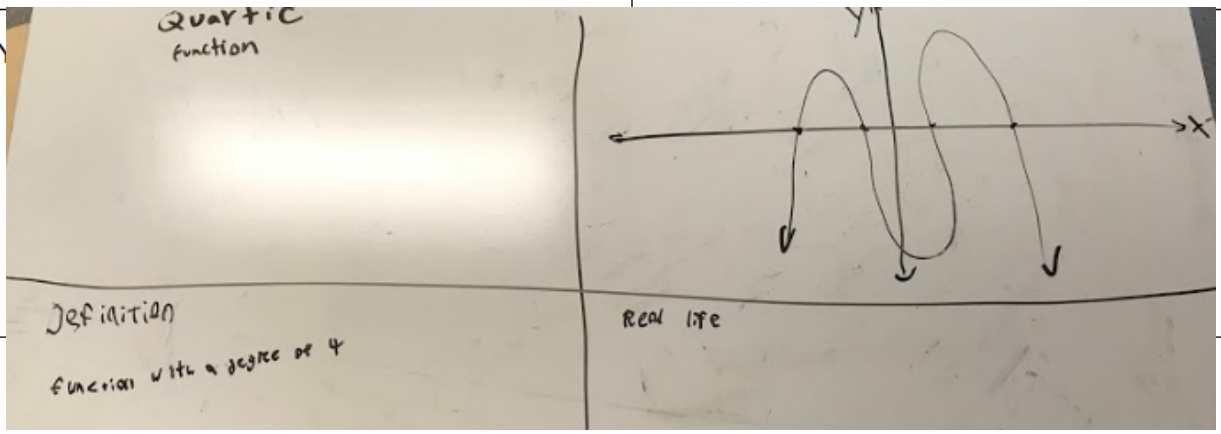
| Vocabulary Term | Picture |
|---|---|
| **Exponential function** |  |
| Your Definition |  |

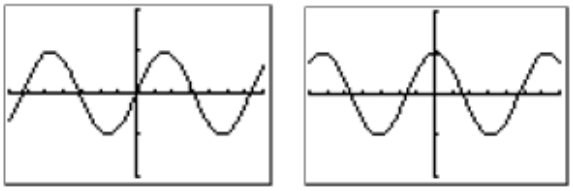
| Vocabulary Term | Picture |
| --- | --- |
| **Cubic function** |  |

| Vocabulary Term | Picture |
| --- | --- |
| Cubic function |   |

| Definition | RL Connection |
| --- | --- |
| Cubic function is a Polynomial function of degree 3, and a real function<br>It's a function of the form where the coefficient a, b, c, and d are real numbers and variable x takes real values.<br>$a \neq 0$ | Change in volume of a rectangular prism as side length changes. |

| Vocabulary Term | Picture |
| --- | --- |
| **Quartic function** |  |

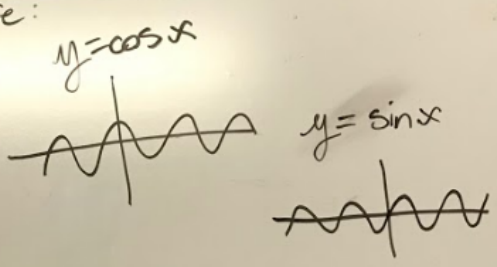


| Vocabulary Term | Picture |
| --- | --- |
| **Sinusoidal function** |  |

Vocabulary Term:

Sinusoidal Function

Picture:




Definition:

A periodic function that's a single wave that keeps on repeating.

Connection:

Any x-rays, Radio waves, visible light, gamma rays, U.V. light ETC. could be accurately graphed by y=sin x