

Functions Day 5: In Class

SCENARIOS

Classify the following scenarios as **linear**, **quadratic**, **exponential**, or **other**. Circle, underline or highlight the word(s) that lead you to your conclusion.

1. You serve a volleyball (underhand). It clears the net, hits its highest point at 8.1 feet after 2 seconds, then hits the ground after 5 seconds. Model the height of the ball as a function of time.
2. Now that it's February, (and people have forgotten about their New Year's resolutions), the gym expects that 10 people will drop their gym membership each month. They started the year with 857 members. Model the number of people with gym memberships as a function of time.
3. You are hiking up a mountain at a rate of 5 miles per hour. Once you make it to a height of 1000 feet, you stub your toe and return down the mountain at a rate of 5 miles per hour. Model your height on the mountain as a function of time.
4. 98 million viewers tuned in at kickoff this Super Bowl. The number of viewers watching the super bowl decreased by $\frac{1}{8}$ each hour of the game. Model the number of viewers over time in millions of viewers (use 98 instead of 98 million).

EQUATIONS

Classify the following equations as **linear**, **quadratic**, **exponential**, or **other**. State the reason you made this decision.

1. $f(x) = -x^{3/7}$

2. $f(x) = -\left(\frac{3}{7}\right)^x$

3. $f(x) = -\frac{3}{7}x$

4. $f(x) = -\frac{3}{7}x^2$

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TABLES

Classify the following tables as **linear**, **quadratic**, **exponential**, or **other**. State the reason you made this decision.

A

Days	\$
0	5100
1	6200
2	7300
3	8400

B

Hours	\$
0	1
2	169
4	28561
5	371293

C

Years	\$ in millions
0	0
1	1
2	1.4142
3	1.7321
4	2

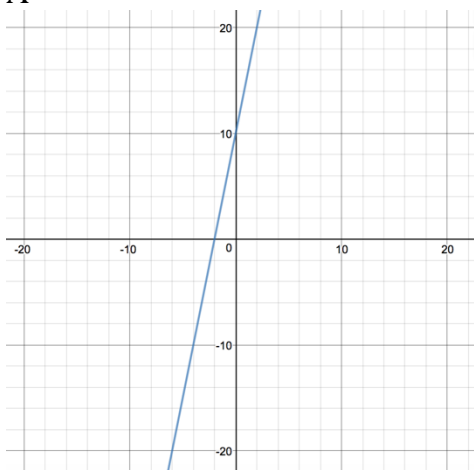
D

Minutes	acceleration
0	17
1	14
2	5
3	-10
4	-31

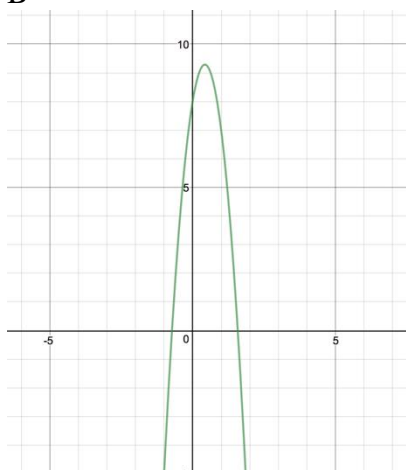
Graphs

Classify the following graphs as **linear**, **quadratic**, **exponential**, or **other**. State the reason you made this decision.

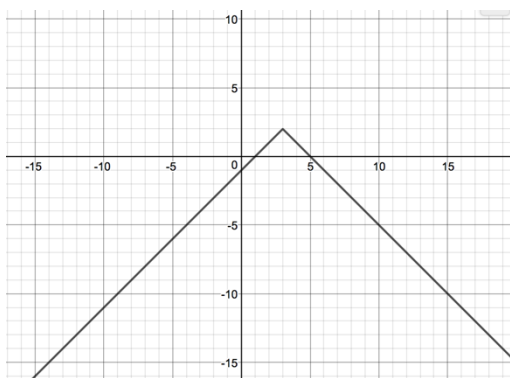
A



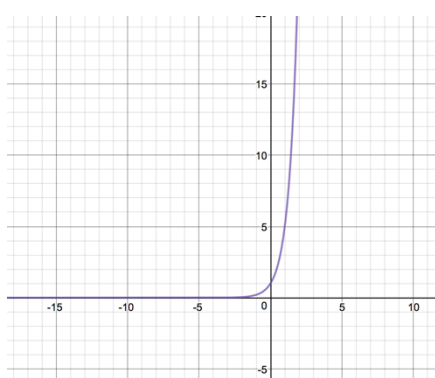
B



C



D



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Comparing Functions in Different Representations

Fill in the table below with ways to decide which function family (Linear, Quadratic, or Exponential) a situation belongs to as a class.

	Linear Situation	Quadratic Situation	Exponential Situation
Scenario			
Equation			
Table			
Graph			

Will a situation always fit into one of these 3 function families?