

Math Enrichment Program

WELCOME!

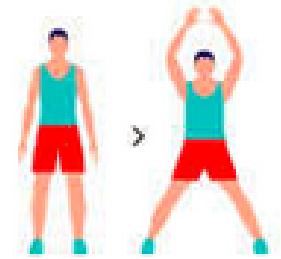
CHANGE IN RATE

Agenda:

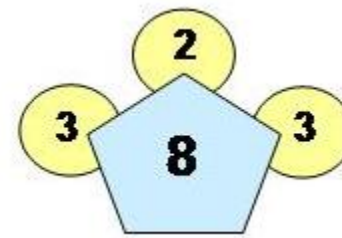
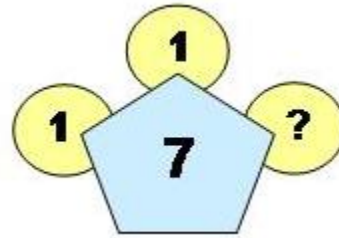
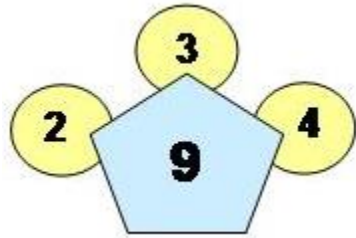
- Warm ups
- Pop Up Questions
- Change in Rate Lesson
- Game
- Reflection

This session will be recorded for learning purposes. Learning purposes include: a lesson review for students who are absent, students who want to review for a test, etc.

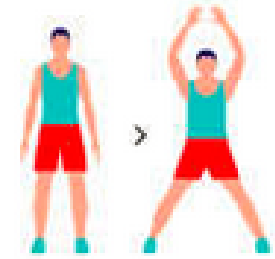
Warm Up



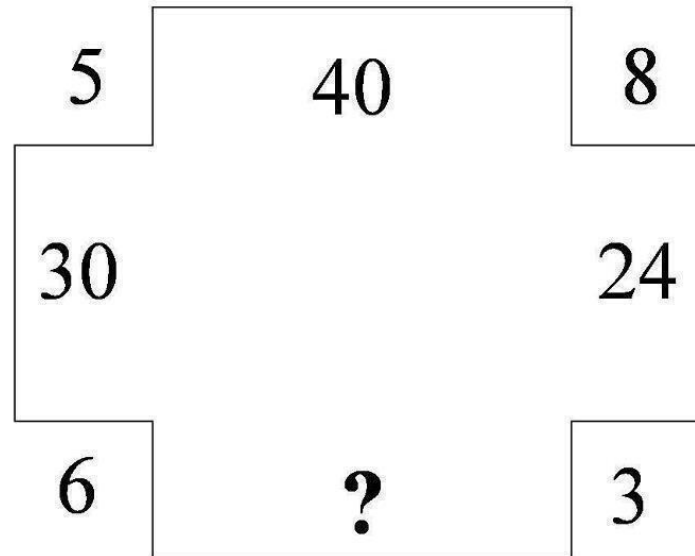
What is the missing number?



Warm Up



What is the missing number?





POP – UP #1

1) $f(x)$ is a linear function represented by the given table of values; which of the following choices represents $f(x)$?

A) $f(x) = -5x + 1$

B) $f(x) = 2x - 3$

C) $f(x) = x^2$

D) $f(x) = 5$

x	$f(x)$
0	1
1	-4
2	-1
3	-14
10	-49

POP – UP #2

2) Fill in the blank,

729, 243, 81, _____, 9, 3, ...

A) 36

B) 27

C) 15

D) there is no pattern



POP – UP #3



For the linear function $y = -4x - 1$; if $x = 0$, then $y = ?$

A) 5

B) -1

C) -5

D) can't be found

POP – UP #4



4) Fill in the blank,

76, 61, 46, _____, 16, 1, ...

A) 29

B) 36

C) 31

D) No pattern

POP – UP #5



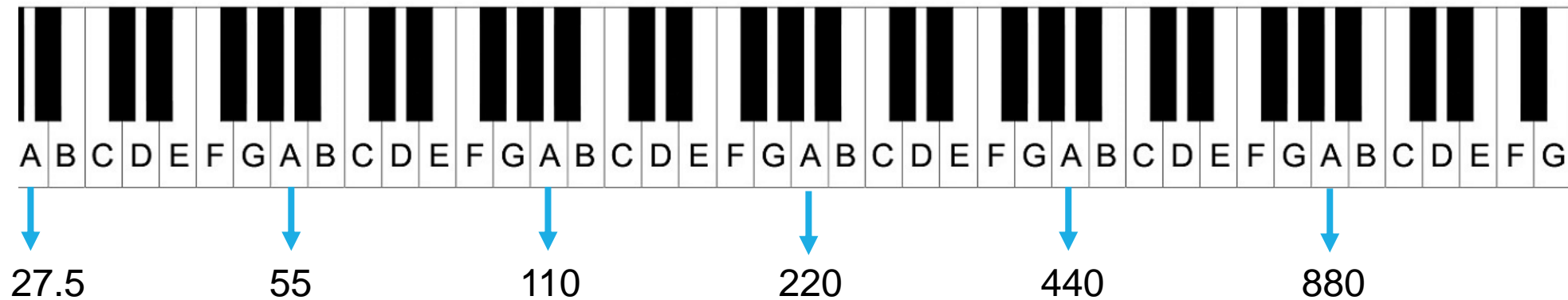
5) For the linear function $y = \frac{1}{2}x - 1$, for each one unit increase in x the y -value is increased by 2.

- A) True
- B) False

Review – Patterns & Functions

Do you play any instruments?

A piano has 52 white keys. When you strike a key, the key's string vibrates. The frequency is the number of vibrations per second the key's strings makes. Below is a diagram of a keyboard, showing the frequency for different keys. What pattern do you notice?



Exploring Rate of Change

The table below shows the cost for renting a piece of equipment.

$$\text{rate of change} = \frac{\text{change in cost}}{\text{change in \# of days}}$$

What is the rate of change between 1 and 2 days?

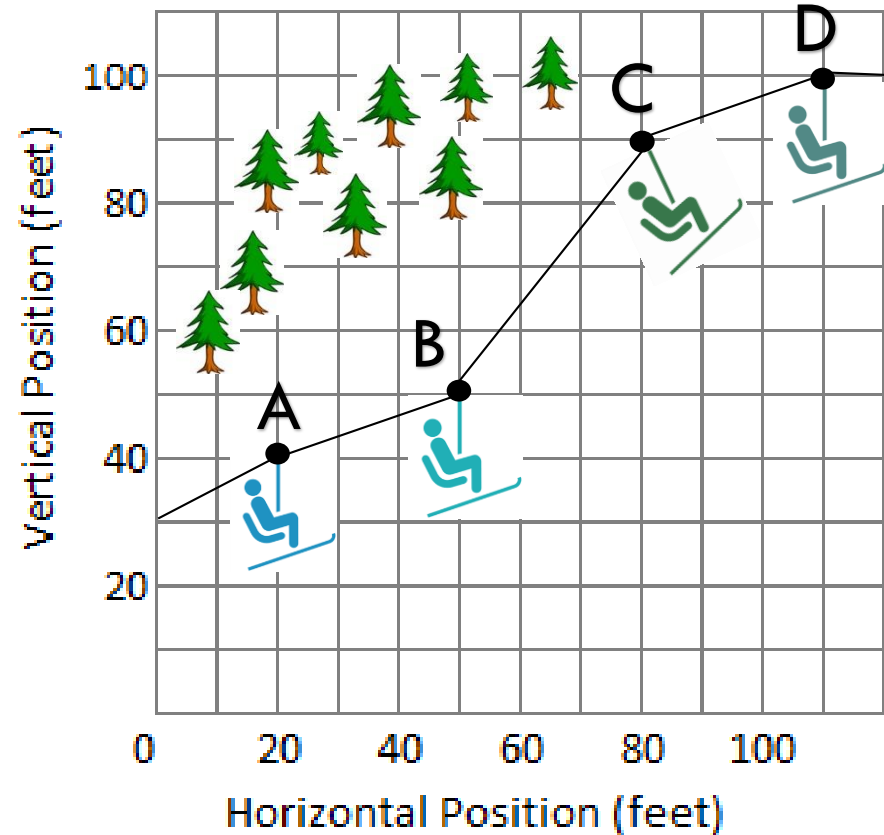
# of Days	Rental Charge
1	\$60
2	\$75
3	\$90
4	\$105
5	\$120

What is the rate of change between 2 and 5 days?

Exploring Rate of Change

The diagram at the right shows the side view of a ski lift.

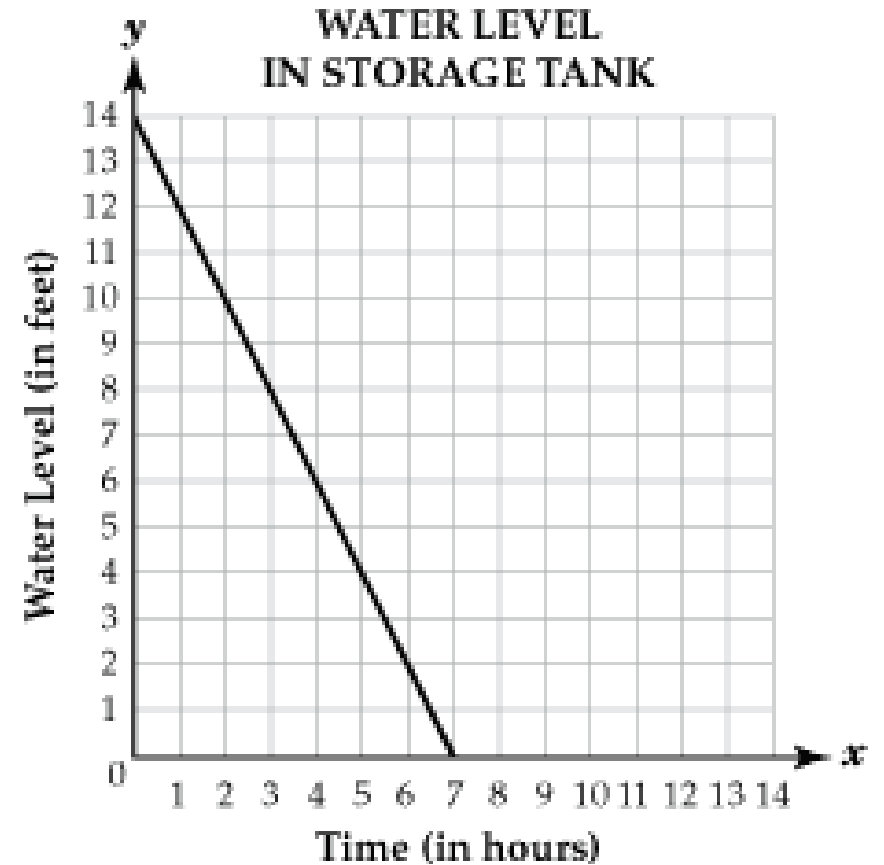
1. What is the vertical change from:
 - A to B?
 - B to C?
 - C to D?
2. What is the horizontal change from:
 - A to B?
 - B to C?
 - C to D?
3. Find the ratio of the vertical change to the horizontal change for each section of the ski lift. Which section is the steepest?



Exploring Rate of Change

The graph tracks the water level in a storage tank.

1. What is the rate of change between 2 to 7 hours?
2. What is the rate of change between 4 to 6 hours?
3. What is the water level at 0 hours?
4. Could you write a linear equation, given the information you have? If so, what is it?

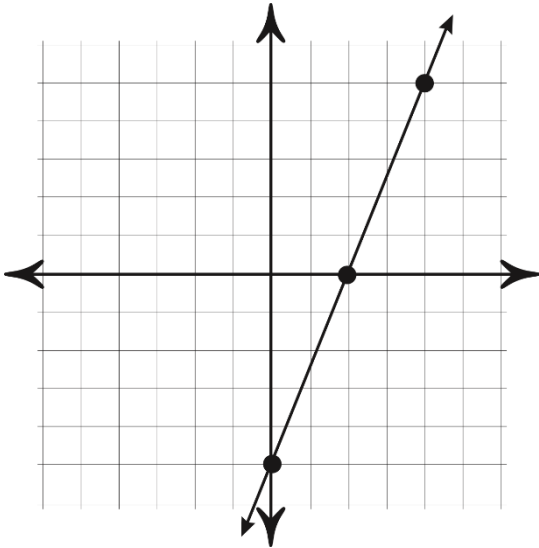


Write the Linear Equation for Each Graph

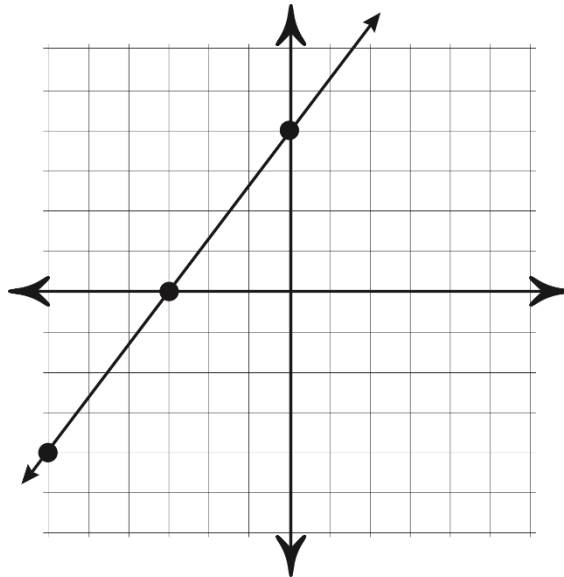
$$y = mx + b$$

What do we call this format?

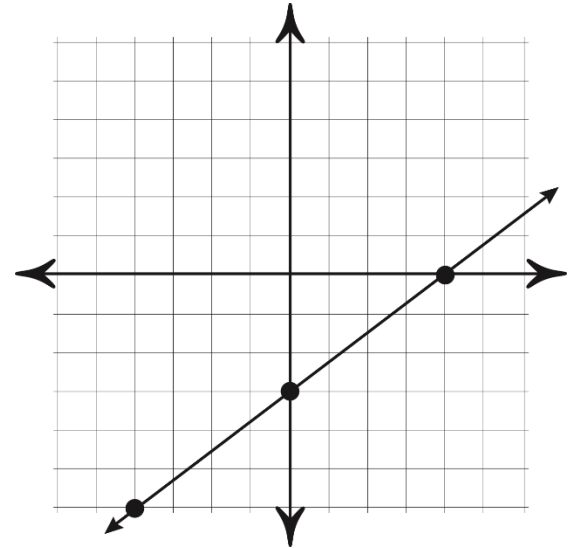
A



B



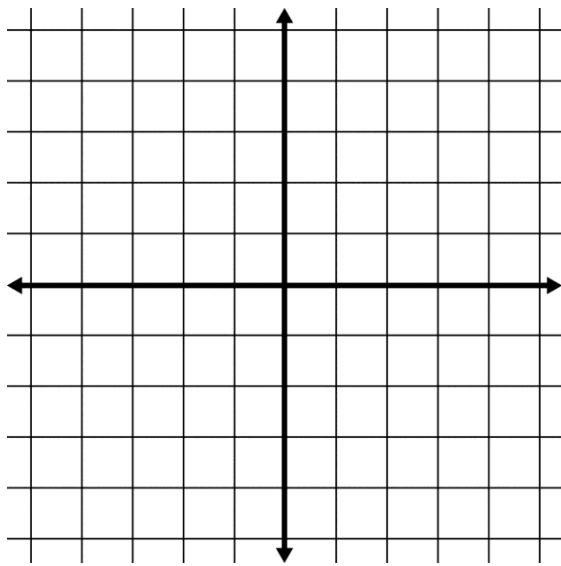
C



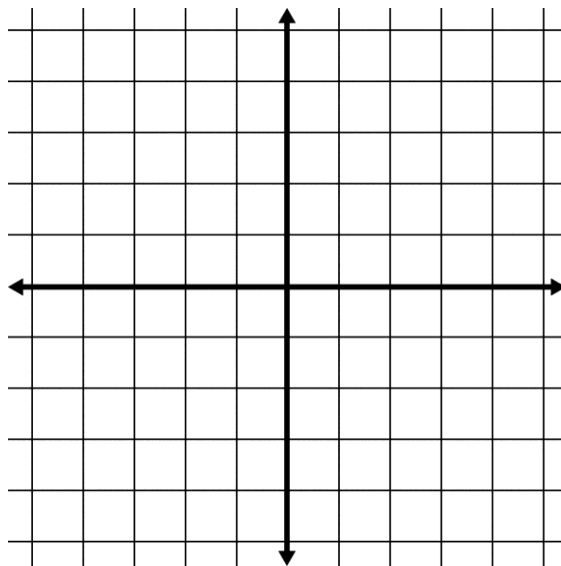
What do the graphs have in common?

Graph Each Linear Equation

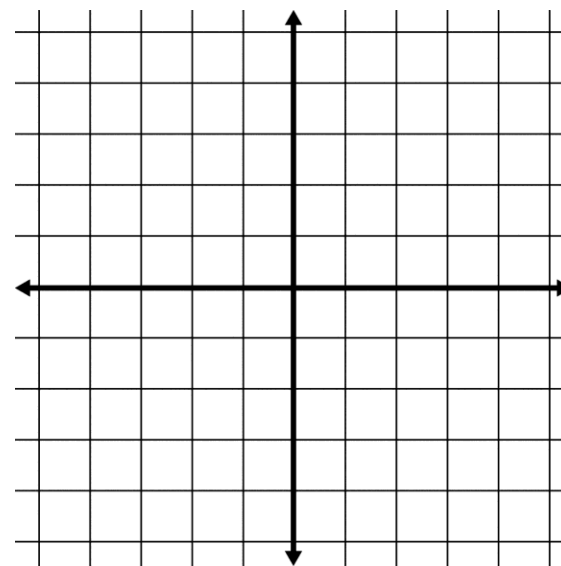
$$y = \frac{1}{2}x + 2$$



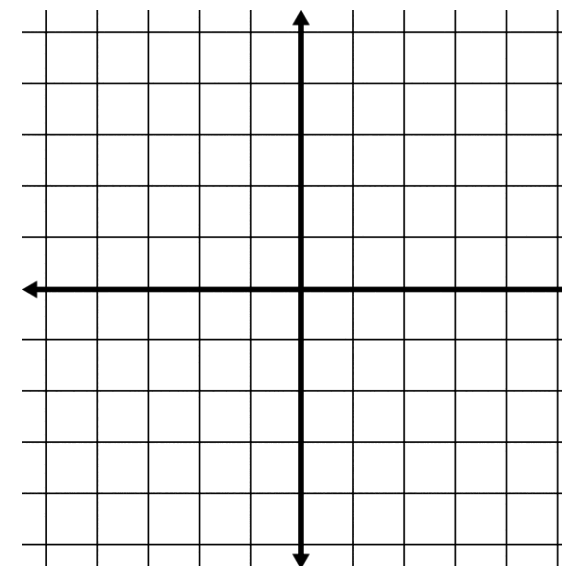
$$y = 3x - 1$$



$$y = -2x + 3$$

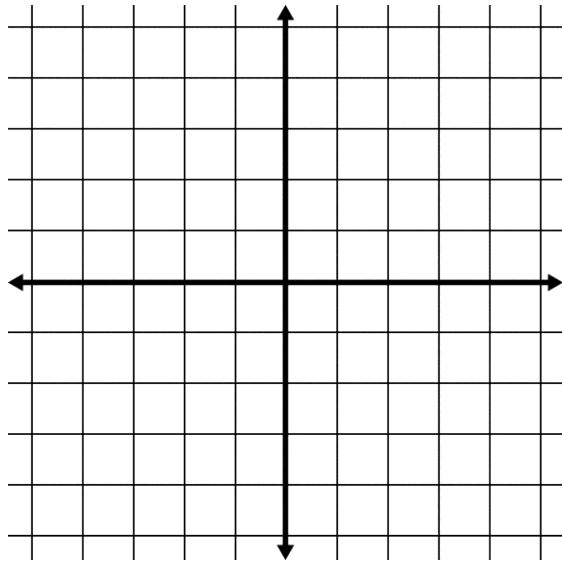


$$y = 4$$



How can you graph this equation?

$$x + 3y = 3$$



Convert Each Equation to Slope-Intercept Form:

$$-6x + 3y = -3$$

$$2x - 5y = -20$$

$$8x + 4y = 16$$

$$x - 2y = 6$$

REFLECTION

Please write on the board

Write **TWO** things you learned **TODAY**