

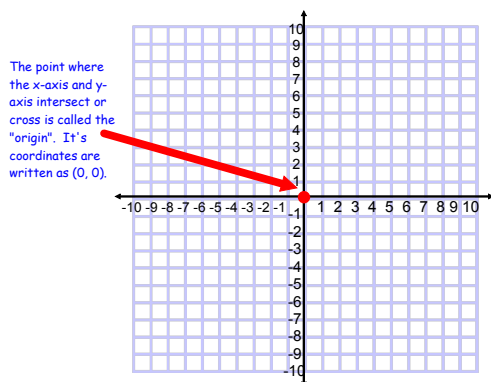
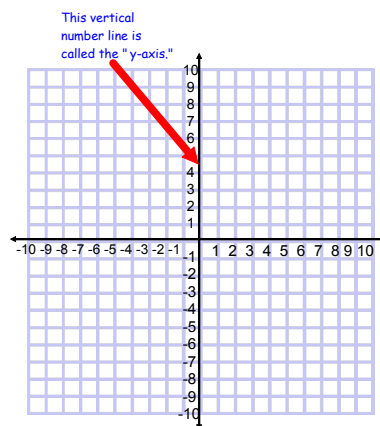
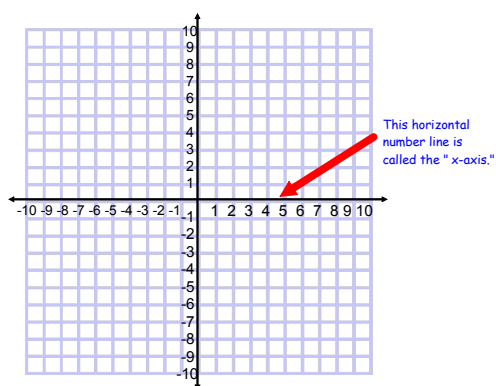
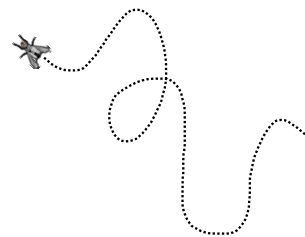
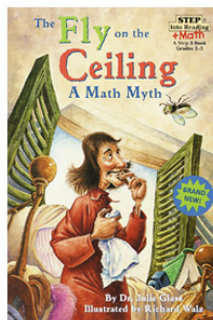
## Math 7H - Unit 3

## Day 6 - Graphing Proportional Relationships

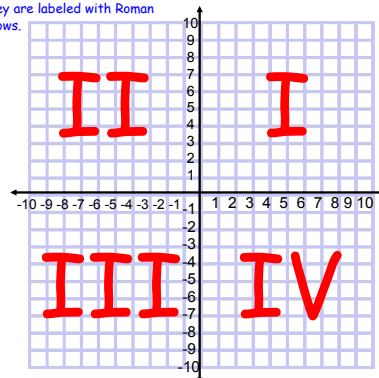
## Lesson Objectives:

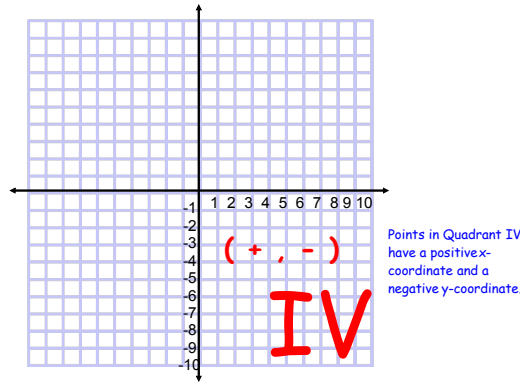
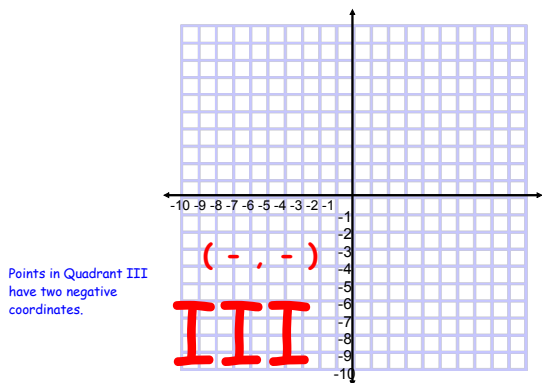
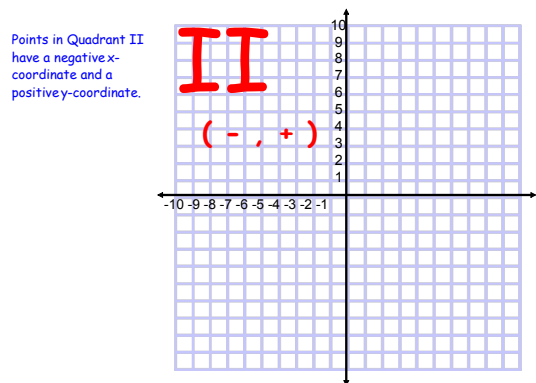
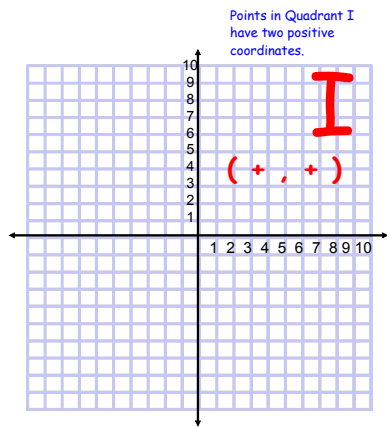
- I can recognize and represent proportional relationships between quantities.
- I can determine whether quantities are proportional by graphing on a coordinate plane.

## The Coordinate Plane



The two axis divide the space into 4 congruent (equal) spaces known as "quadrants". They are labeled with Roman Numerals as follows.



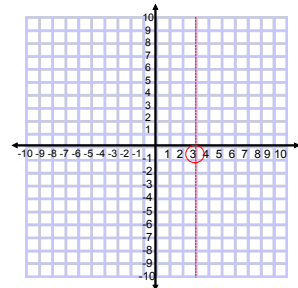


Use the following steps to graph a point on the coordinate system.

(3, 5)

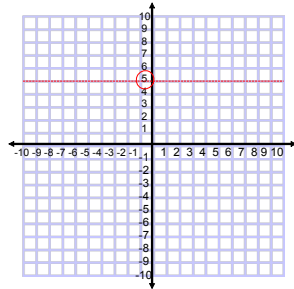
(3, 5)  
↑

Step 1:  
Look at the x-coordinate and determine whether it's positive or negative.



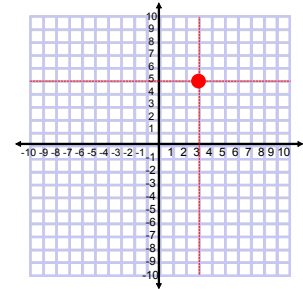
(3, 5)

Step 2:  
Look at the y-coordinate and determine whether it's positive or negative.



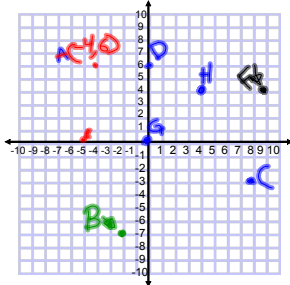
(3, 5)

Step 3:  
Find the point of intersection between the two coordinates. Mark this point on the Coordinate System.



Mark the following points on the same Coordinate System.

A (-4, 6) B (-2, -7) C (8, -3) D (0, 6)  
E (-5, 0) F (9, 4) G (0, 0) H (4, 5)



In this lesson, only the first quadrant will be used since we will only be working with positive integers today.

Create a table of values for each movie. Then graph the values from the table on a coordinate plane.

The cost of a 3D movie is \$12 for 1 ticket, \$24 for 2 tickets, and \$36 for 3 tickets. Is the price proportional to the number of tickets?

Price (\$)	12	24	36
Tickets	1	2	3

yes

The cost of a regular movie is \$8 for 1 ticket, \$15 for 2 tickets, and \$20 for 3 tickets. Is the price proportional to the number of tickets?

Price (\$)	8	15	20
Tickets	1	2	3

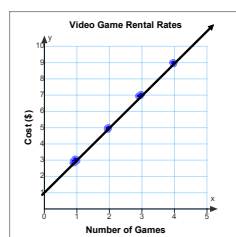
no



Another way to determine whether two quantities are proportional is to graph the quantities on the coordinate plane. If the graph of the two quantities is a straight line through the origin, then the two quantities are **proportional**.

The cost of renting video games from Games Inc. is shown in the table. Determine whether the cost is proportional to the number of games rented by graphing on the coordinate plane. Explain your reasoning.

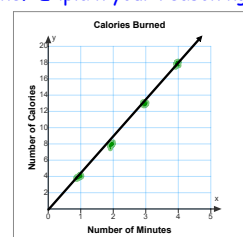
Video Game Rental Rates	
Number of Games	Cost (\$)
1	3
2	5
3	7
4	9



No, because the straight line doesn't go through the origin.

The table shows the number of Calories an athlete burned per minute of exercise. Determine whether the number of Calories burned is proportional to the number of minutes by graphing on the coordinate plane. Explain your reasoning.

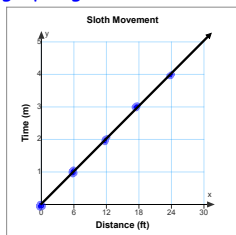
Calories Burned	
Number of Minutes	Number of Calories
1	4
2	8
3	13
4	18



No, I don't have a straight line.

The slowest mammal on Earth is the tree sloth. It moves at a speed of 6 feet per minute. Determine whether the number of feet the sloth moves is proportional to the number of minutes it moves by graphing on the coordinate plane. Explain your reasoning.

Distance (ft)	Time (m)
0	0
6	1
12	2
18	3
24	4



*Yes, it's a straight line through the origin.*

## Homework

### Graphing Proportional Relationships WKS

**\* Individual Think Time \***



What to do if you get stuck...

1. Reread the problem. Did you write it down correctly?
2. Reread your notes. Is there a problem similar that we did together in class?
3. Find a problem similar in your book. Try this one to see if it helps.
4. Skip the problem until the end of Individual Think Time. Then ask an "educated" question of a neighbor or Mrs. Call.

Today we're working by...

