

Section 6.3

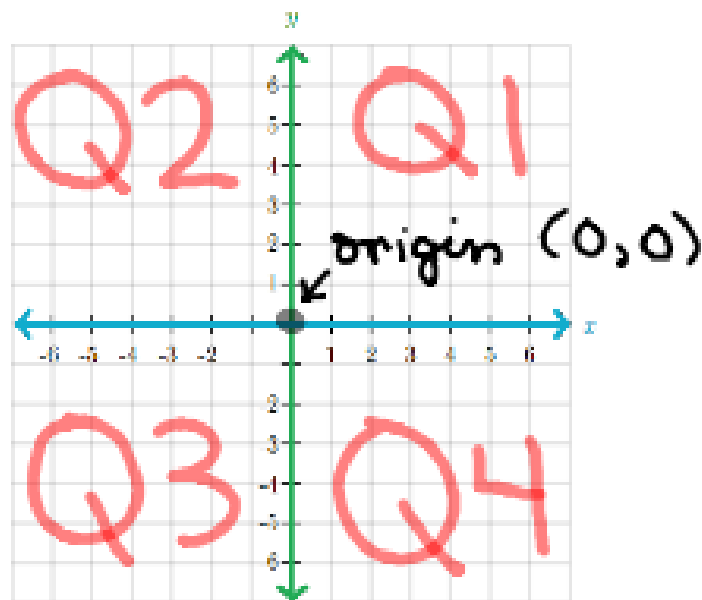
Graphing Linear Relations

Day 1:

- 1) Setting up our graph properly**
- 2) Independent and dependent variables**

The coordinate plane is divided into 4 quadrants by its two axes:

- a **horizontal axis** for the **independent variable**
- a **vertical axis** for the **dependent variable**.



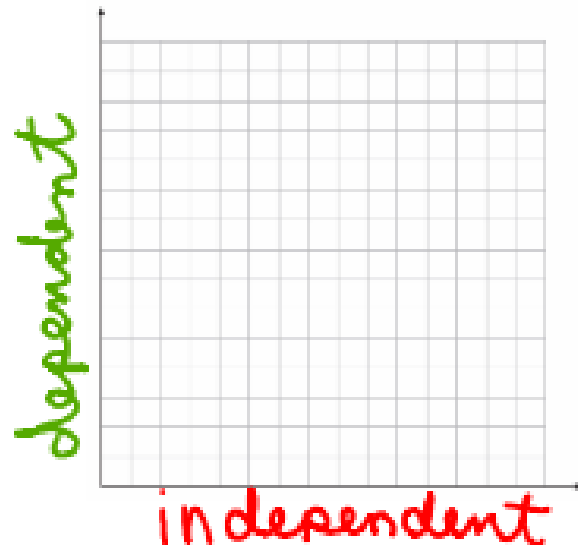
The point where the two axes cross is called the "**origin**".

The (x, y) coordinates of the origin are **(0, 0)**.

This means the **scales** on the axes must both begin at 0.

When we graph in the coordinate plane, whether we use all 4 quadrants or not is determined by what kind of data we are graphing.

"real-world" data involving things that can't be negative have graphs in the first quadrant only.

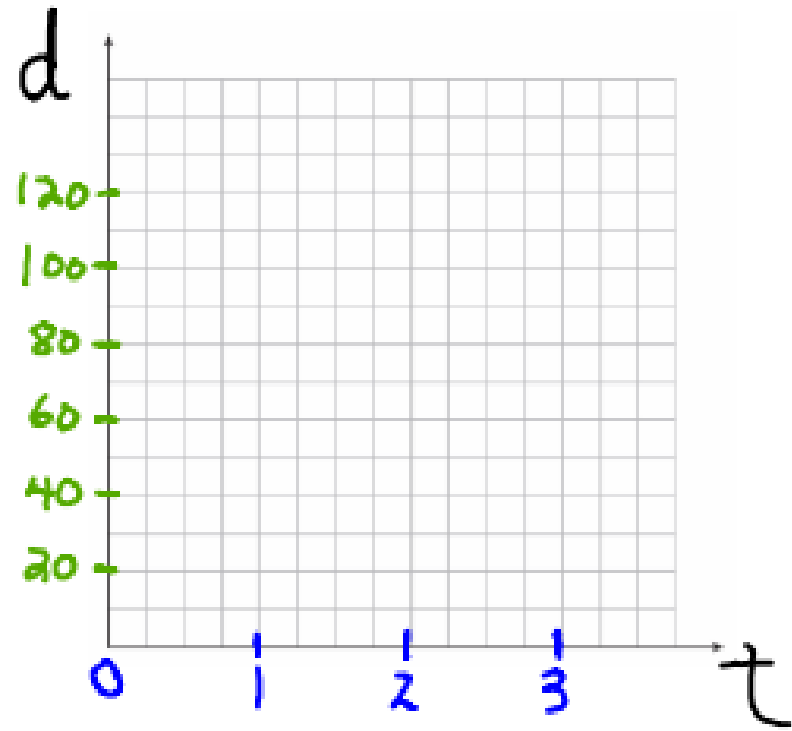
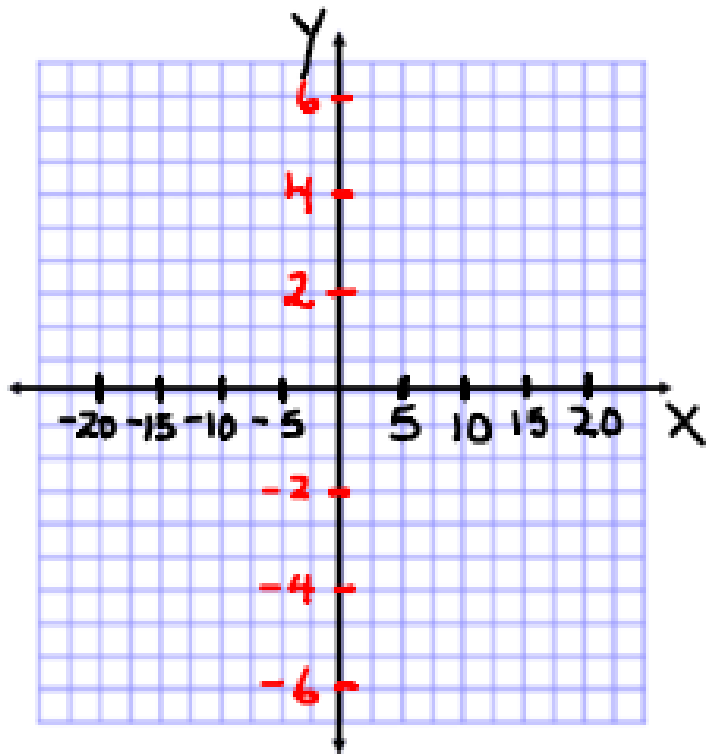


Axes are drawn along the bottom and along the left side.

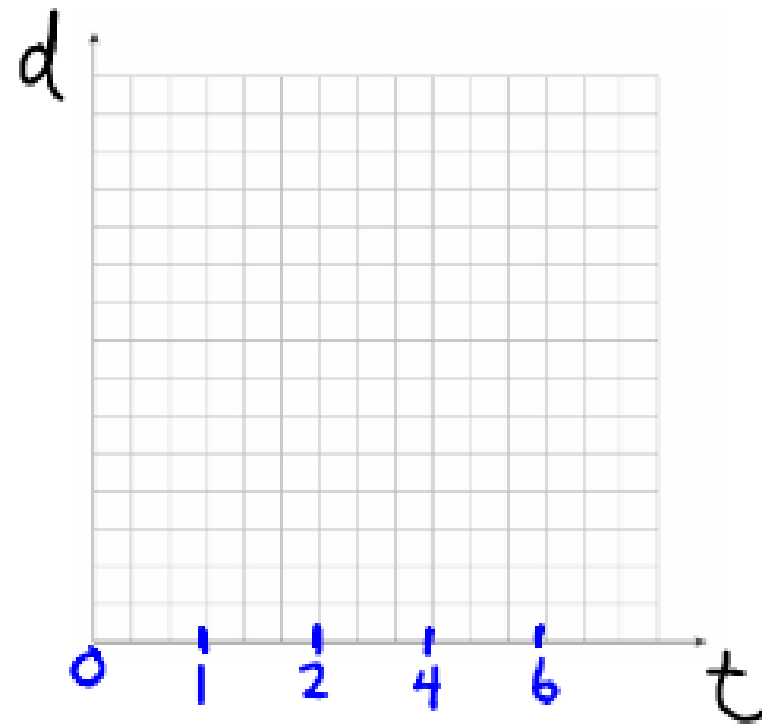
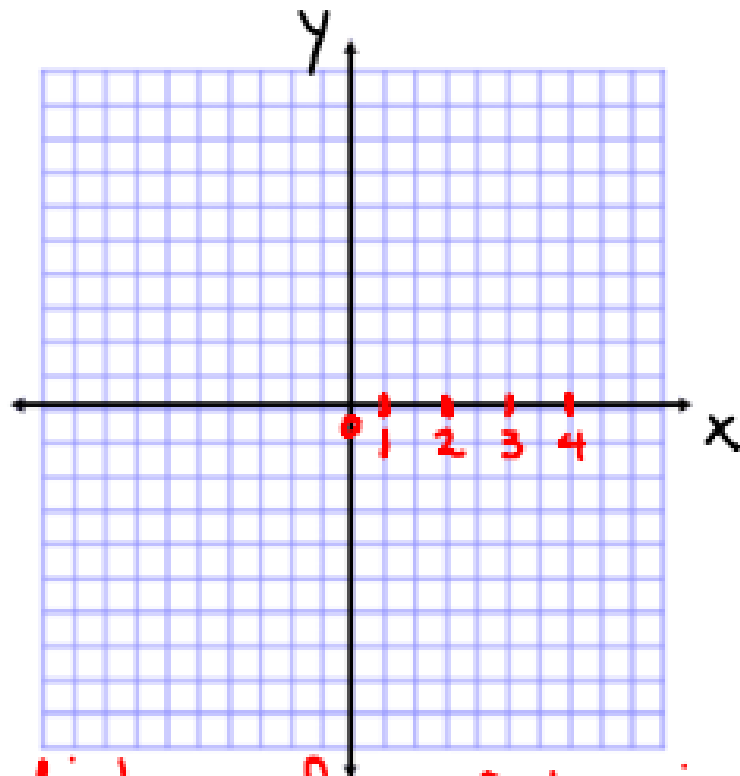
The numbers used in the scales will depend on the data from the relation. No matter how big or small our numbers will get on the scales, we have to have **uniform increments**.

The numbers of our scales must line up **with the grid lines**, **not between the grid lines**.

uniform increments



non-uniform increments



The distance from 0 to 1 is not the same as from 1 to 2.

Example:

A cell phone company charges a \$20.00 flat fee per month plus \$0.05 for every minute used for calls.

There is a linear relation that compares the monthly cost of the cell phone with the number of minutes used for calls.

N = number of minutes of calls

C = monthly cost

- Which is the independent variable?

N = number of minutes of calls

- Which is the dependent variable?

C = monthly cost

Set up the coordinate plane for this relation:

label the axes

put appropriate scales on the axes

It makes sense to connect the points

