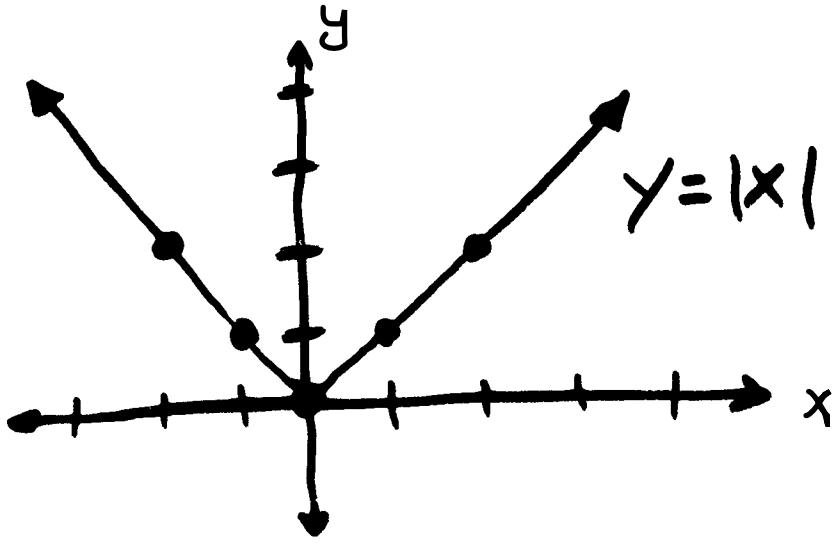
BE-Alg. 1 TUESDAY 10-12-10

① GRAPH: $y = f(x) = |x|$

THE T-TABLE is a basic tool of Algebra and is used, along with the $f(x)$ form ("solve for y" form) of an EQUATION TO find "ENOUGH" (x, y) pairs to "reveal" the graph of ANY function.

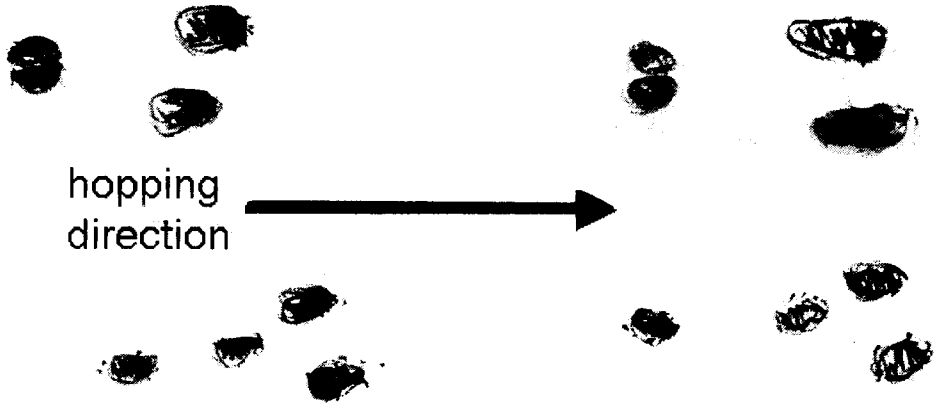
X	$y = \lvert x \rvert$
-2	2
-1	1
0	0
1	1
2	2



Does anyone (raise your hand), know what kind of animal makes these tracks? And can you tell anything else from the tracks?

RABBIT TRACKS

each print about the size of a man's thumbprints



When rabbits travel, first their small front paws touch the ground, then the larger back feet travel over the paws still on the ground, and land in front of the planted front paws. Therefore, tracks of the front paws lie behind the tracks of the back paws.

The tracks at the top are produced by a rushing rabbit while those below, with the clusters of prints closer together and the front paws (the smaller tracks on the left in the cluster) are placed one above the other instead of together as at the top.

Return to the MAMMAL TRACKS PAGE
Return to the MAMMAL INDEXPAGE
Return to the HOME PAGE

Also: try the "Animal tracks quiz" for beginners – link is on tonight's assignment page. (on bulldogmath.com)

Just like an "outdoors" person can tell what kind of an animal made a set of tracks, an "Algebraist" can tell what kind of a graph is made by an equation. Not always but often, especially with simple functions like we will see in Algebra I.

An equation also will quite often tell other things about the graph besides its shape — just like the rabbits tracks tell you more than they are just rabbit tracks.

How to tell if an equation will be a line, a linear equation.

(*d) ⇒

If the equation has only x', y', and numbers separated only by + or − it is a linear equation.

Ex) $2x + 3y = 6$ linear

Ex) $5x - 2y + 14x - 6y = 8y + x + 2$

linear

Ex) $3x + 2y + 4x^2 = 12$ NON-linear (NOT linear)

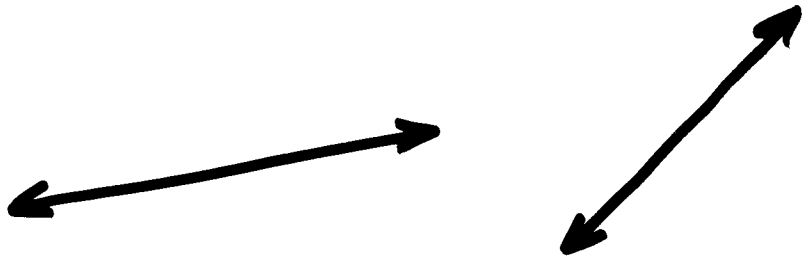
Ex) $6xy + 2x + 3y = 8$ NON-linear

Ex) $\frac{1}{x} = y$ NON-linear

Ex) $\frac{x}{3} = y$ linear, since $\frac{1}{3}x' = y'$

WHAT ARE "properties" OF LINES THAT ARE ALSO revealed by EQUATIONS if you know WHAT TO look for?

WHAT is different about these lines?



Slope is A <u>number.</u> It is A measure of how "steep" A line is. Just like temperature is A number.

The bigger the number, the steeper the line.

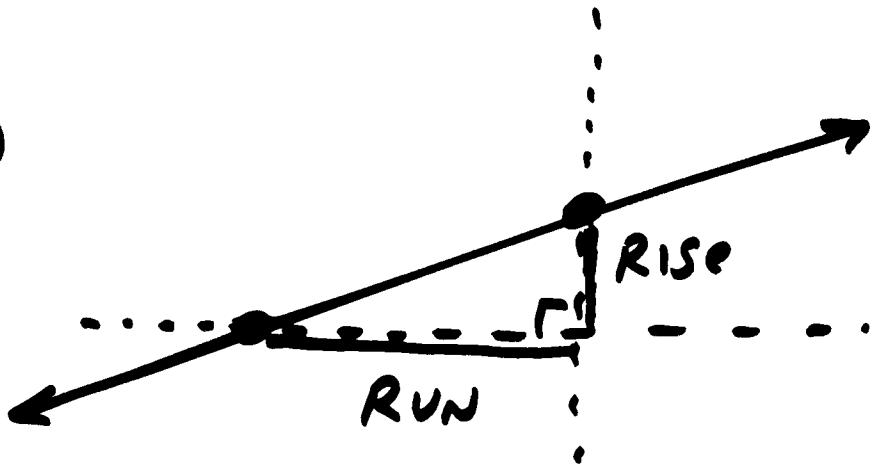
How DO you find this number?

To Find Slope:

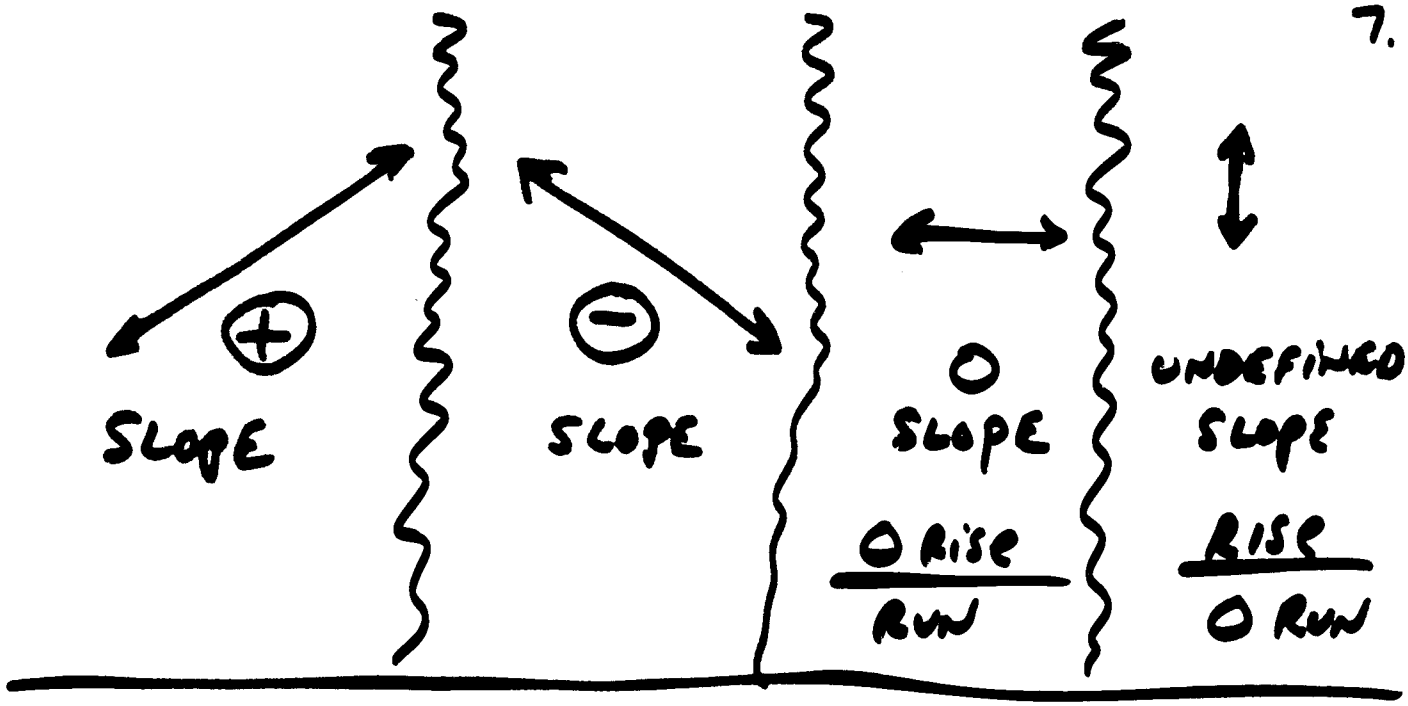
1. Take any 2 points on line
2. Draw horizontal line through one point, vertical through other.
3. Measure the two sides of the resulting right triangle. (90°)

$$\text{Slope} = m = \frac{\text{rise}}{\text{run}}$$

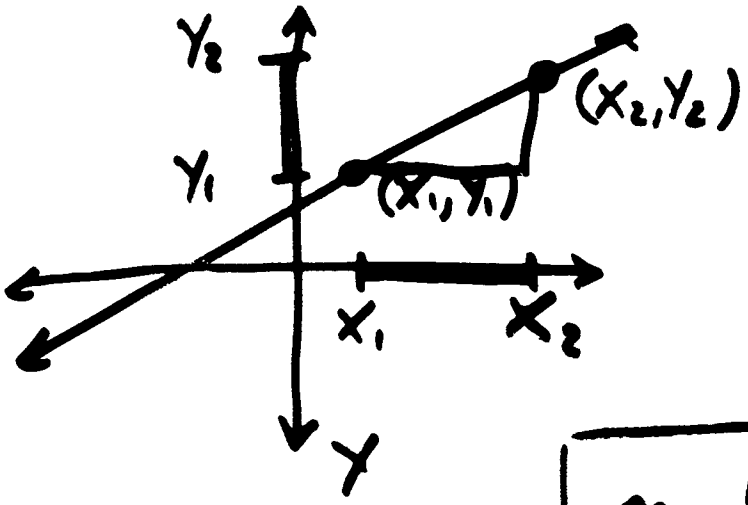
Ex



- Slope is m for historical reasons
- French word to climb is "monter"



Formula for slope
(for lines on the X-Y Coordinate Plane)



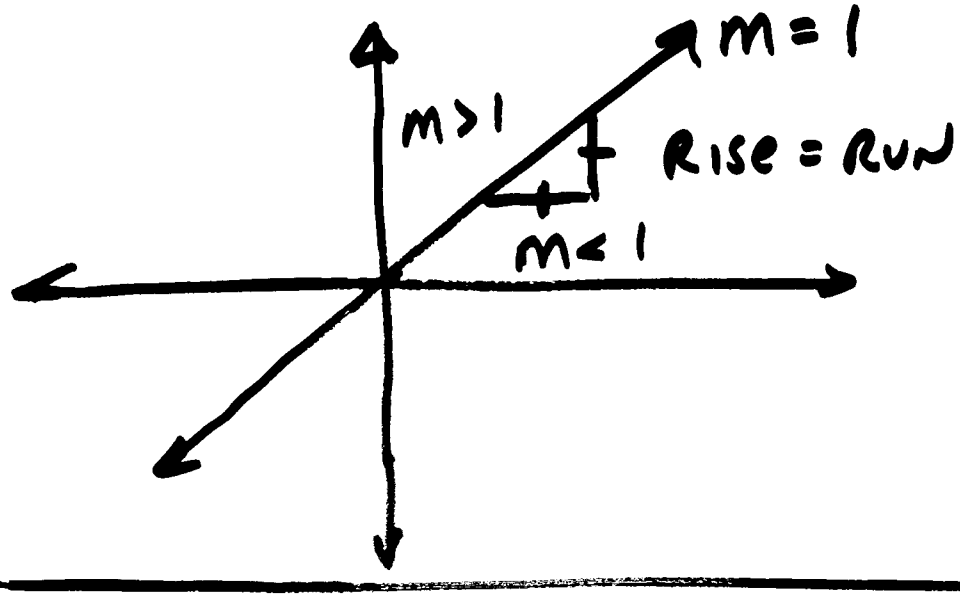
$$m = \frac{rise}{run} = \frac{Y_2 - Y_1}{X_2 - X_1}$$

Ex 1 Pg 257 Find slope of line through $(-1, 2), (3, 4)$

$(-1, 2), (3, 4)$

$$m = \frac{4-2}{3-(-1)} = \frac{2}{4} = \boxed{\frac{1}{2} = m}$$

Note: if $\frac{\text{Rise}}{\text{Run}} = 1 = 45^\circ$ angle



Homework: • Read Ch 5-1 • Pg 259 # 5 to 10