Elements of a Cartesian Graph.
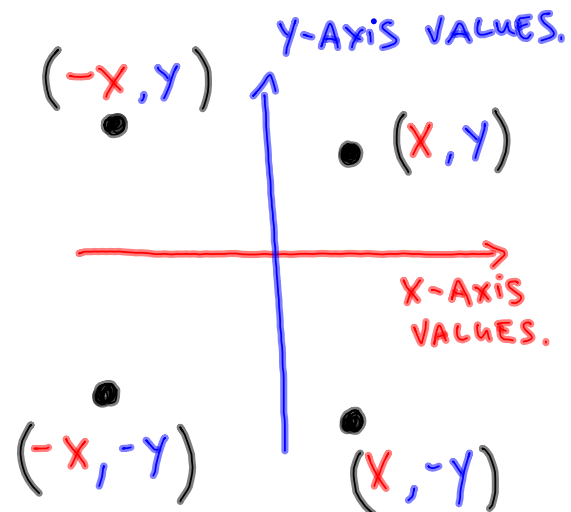
X-Axis ⇒ for IND. VARIABLE.

Y-Axis ⇒ for DEP. VARIABLE.

※ ALWAYS X, THEN Y

HORIZONTAL, VERTICAL

$(-X, Y)$

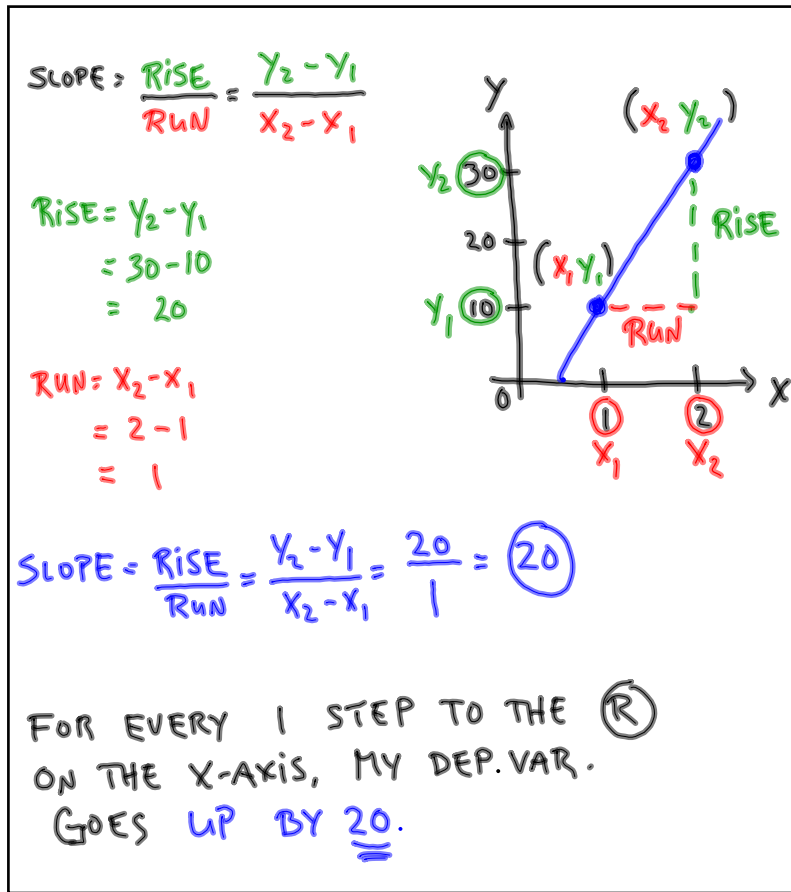(X, Y)

Y-Axis VALUES.

X-Axis VALUES.

$(-X, -Y)$

$(X, -Y)$

Rate of change.

A.K.A. SLOPE ⇒ HOW MUCH THE DEP. VARIABLE. CHANGES BY FOR EVERY 1 STEP TO THE RIGHT ON THE X-AXIS.

DEP. VAR.

RISE

RUN.

IND. VAR.
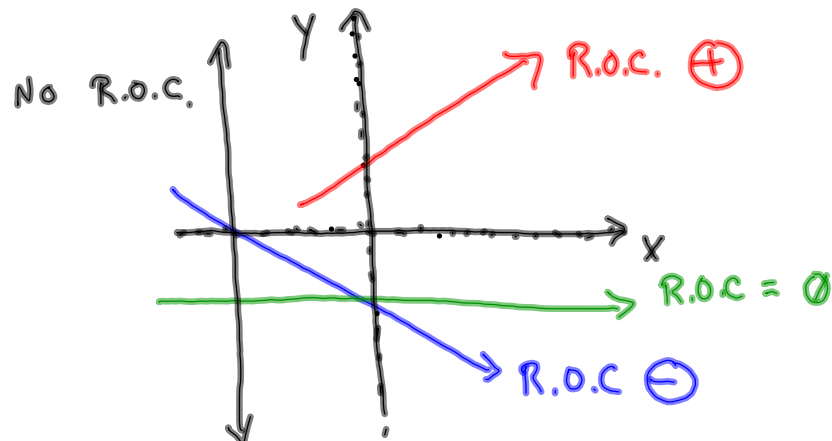
$$\text{SLOPE} : \frac{\text{RISE}}{\text{RUN}} = \frac{Y_2 - Y_1}{X_2 - X_1}$$

SLOPE: $\dfrac{\text{RISE}}{\text{RUN}} = \dfrac{Y_2 - Y_1}{X_2 - X_1}$

RISE $= Y_2 - Y_1$
$\quad = 30 - 10$
$\quad = 20$

RUN $= X_2 - X_1$
$\quad = 2 - 1$
$\quad = 1$

SLOPE $= \dfrac{\text{RISE}}{\text{RUN}} = \dfrac{Y_2 - Y_1}{X_2 - X_1} = \dfrac{20}{1} = \boxed{20}$

FOR EVERY 1 STEP TO THE ⓡ ON THE X-AXIS, MY DEP. VAR. GOES UP BY 20.

NOTES ON SLOPES.

→ $-$ive SLOPE GOES ↓ AS YOU STEP TO THE ⓡ

→ $+$ive SLOPE GOES ↑ AS YOU STEP TO THE ⓡ.

→ SLOPE $= 0$ MEANS HORIZONTAL LINE.

→ LINE STRAIGHT UP & DOWN : NO SLOPE.
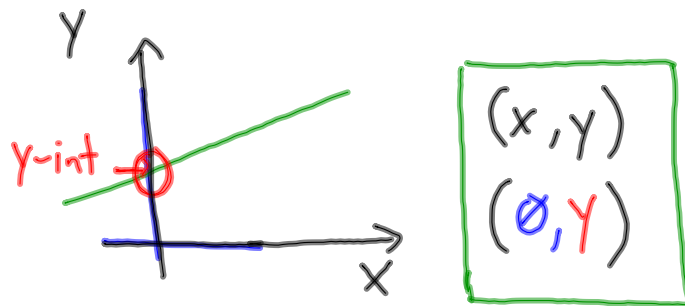

NO R.O.C.

R.O.C. ⊕

R.O.C $= 0$

R.O.C ⊖

Initial value
(y-intercept).

THE VALUE OF THE DEP. VARIABLE (Y-AXIS)
WHEN YOU START (WHEN YOUR X-AXIS VALUE
is $\emptyset$).

A.K.A. Y - INTERCEPT
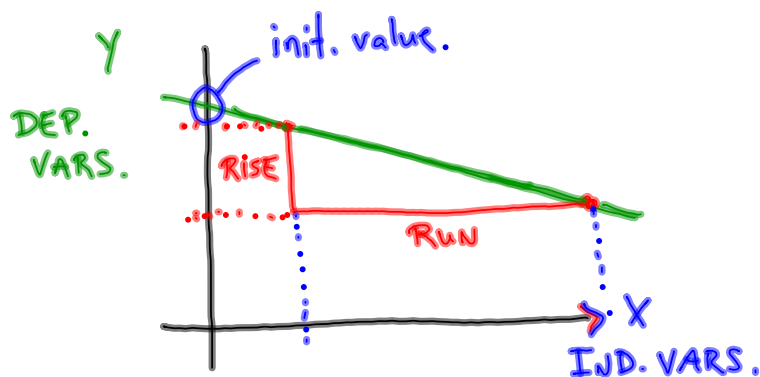
'CAUSE IT'S THE Y-VALUE WHEN
THE LINE CROSSES THE Y-AXIS.

$$(x, y)$$
$$(\emptyset, Y)$$

Rule: $y = a \cdot x + b$.

DEP.   R.O.C   IND.   INITIAL
VAR.   (SLOPE)   VAR.   VALUE
VALUES.   VALUES   (Y-INTERCEPT).

init. value.

DEP.
VARS.

RISE

RUN

X

IND. VARS.

MAKING A GRAPH.

① LABEL YOUR AXES → X AXIS: IND. VAR.
 → Y AXIS: DEP. VAR.

② CHOOSE A PROPER SCALE FOR EACH AXIS

LOOK @ BIGGEST #, GO A LITTLE BIGGER &
MAKE REGULAR DIVISIONS BACK TO ∅ (ORIGIN).

③ PLOT 3 POINTS (X,Y) & CONNECT FOR
A STRAIGHT LINE.

④ TITLE: 'y' DEPENDS ON 'x'
DEP. VAR DEPENDS ON IND. VAR.

NOTES ON INTERCEPTS.

Y-INTERCEPT: Y-VALUE AS THE LINE CROSSES THE
Y-AXIS (@ THE START, X=0)

X-INTERCEPT: X-VALUE AS THE LINE CROSSES THE
(AKA: THE ZERO) X-AXIS (WHERE Y=∅)

Y

Y-int   (0,y)

X-int

(x,0)