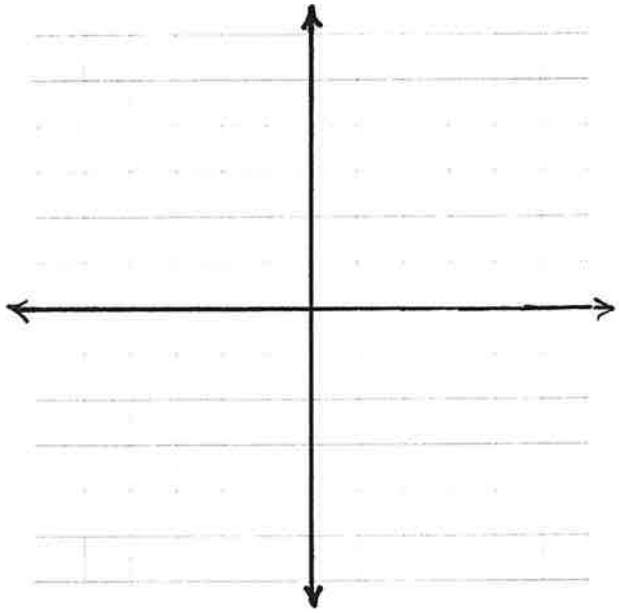
# MATH 1314
## Chapter 2.1: The Rectangular Coordinate System and Graphing Utilities



RENÉ DESCARTES (1597-1650)

CARTESIAN COORDINATE SYSTEM

X-AXIS

Y-AXIS

QUADRANTS

ORIGIN

(X-COORDINATE, Y-COORDINATE)

(1,3) (-4,-3) (0,5)

(-3,2) (2,0) (4,-2)

DISTANCE FORMULA

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

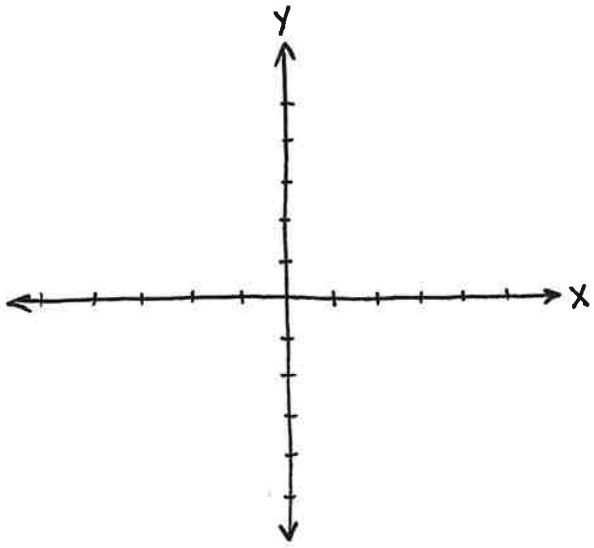
FIND THE DISTANCE BETWEEN $(-4,-2)$ AND $(4,4)$.

MIDPOINT FORMULA

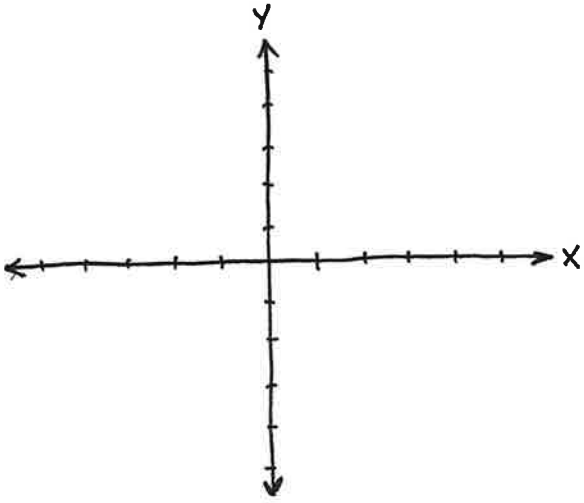
$$m = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

FIND THE MIDPOINT OF THE SEGMENT WITH ENDPOINTS $(-2,-2)$ AND $(4,2)$.

GRAPH $y = 2x + 1$.




GRAPH $y = x^2 - 3$.




FIND THE X-INTERCEPT AND Y-INTERCEPT OF $y = x^2 - 4$.