King Fahd University of Petroleum and Minerals
Prep-Year Math Program
Math (001)-Term (131)
Recitation (2. 1)

Question1. Which of the following three points are:

a) Collinear
b) Vertices of a right triangle

I. $\{(5,7),(3,9),(6,8)\}$

II. $\{(-2,-5),(1,7),(3,15)\}$

III. $\{(0,-2),(5,1),(-4,3)\}$

Solution:

(I): $D(5,7)$, $E(3,9)$, $F(6,8)$ The points ***D***, ***E*** and ***F*** **are vertices** of a right triangle.

(II): $A(-2,-5)$, $B(1,7)$, $C(3,15)$ The points A, B and C **are collinear**.

$\Rightarrow$ The points A, B and C are not vertices of a right triangle.

(III): $A(0,-2)$, $B(5,1)$, $C(-4,3)$ The points A, B and C **are NOT collinear**.

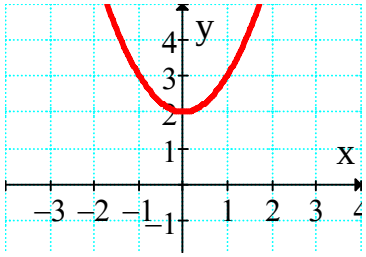
The points A, B and C are **not** vertices of a right triangle.

Question2. Sketch the graph of the equations by plotting points that satisfy the equations $a)\ y-x^2=2$ $b)\ 2x+|y+2|=0$

Solution:

(a): $y-x^2=2$

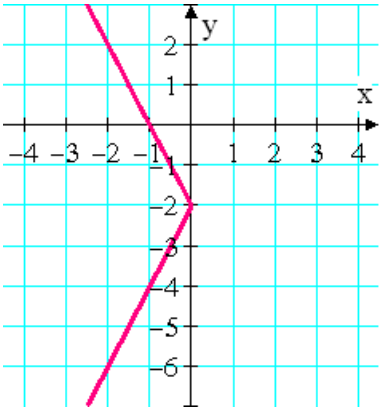
$y=x^2+2$



(b): $2x+|y+3|=0$

$|y+2|=-2x \quad , \quad x\le 0 \quad \Rightarrow \quad \pm(y+2)=-2x \quad , \quad x\le 0$

$\Rightarrow \quad y=-2x-2 \quad \text{or} \quad y=2x-2 \quad , \quad x\le 0$



Question3. Find the distance between the points $P(2x,-7x)$ and $Q(-2x,-4x)$ where $x<0$ **Answer:** $d=|5x|=-5x$

Question4. The distance between the point $(-1,3)$ and the midpoint of the line segment with endpoint $\left(\frac{7}{2},-\frac{16}{3}\right)$ and $\left(\frac{5}{2},-\frac{14}{3}\right)$ is equal to

A) $4\sqrt{5}$ B) $2\sqrt{5}$ C) $5\sqrt{5}$ D) $3\sqrt{5}$ E) $\sqrt{5}$