

Section 4-1 Coordinates for Locations

Warm-up:

Solve

1. $6x + 3 = 21$ $x = 3$

2. $4y - 7 = 29$ $y = 9$

3. $35 = 6p - 1$ $p = 6$

4. A right triangle has one unknown angle. The third angle is three times the size of the unknown angle. Find the measure of each angle.

$$x + 3x + 90 = 180$$

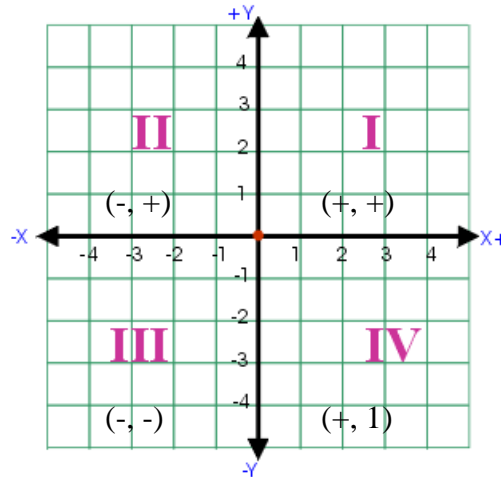
$$\text{so } 4x + 90 = 180 \dots$$

$$x = 22.5, 3x = 67.5, \text{ and one right angle}$$

4-1 Coordinates for Locations

Coordinate plane: a plane determined by a horizontal and vertical number line (or axis), where ordered pairs indicate points on the plane

Ex:



Ordered pair: A pair of numbers used to describe the location of a point. Always written in the form (x, y) .

Ex: $(2, 3)$ is right 2 (along the x-axis) and up 3 (in the y direction).

Origin: The point where the x-axis and the y-axis intersect, which is at $(0,0)$.

Quadrants: the four regions of the coordinate plane.

Quadrant I - x values are positive and y values are positive $(+, +)$

Quadrant II - x values are negative and y values are positive $(-, +)$

Quadrant III - x values are negative and y values are negative $(-, -)$

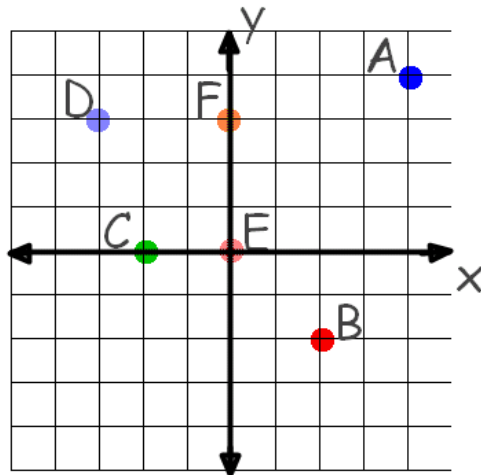
Quadrant IV - x values are positive and y values are negative $(+, -)$

Example 1: Use the following map to answer the questions below:

| | | | | | | |
|---|-------------|-----------|--------------|-----------|-------------|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| A | | | | Restrooms | | |
| B | Candy Store | | | | Music Shop | |
| C | | | | | | |
| D | | | Pottery Barn | | Nordstrom's | |
| E | | Shoe Shop | | | | |

- What store is located in square 5D? *Nordstrom's*
- What are the coordinates of the restrooms? *4A*
- What store is in 1B? *candy store*

Example 2: What quadrant is each point located in?



Solution

Point A is in QI

Point B is in QIV

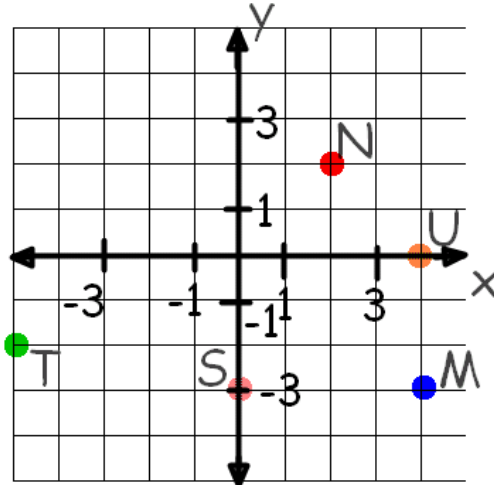
Point C is on the x-axis

Point D is in QII

Point E is on the origin

Point F is on the y-axis

Example 3: Name the coordinates of each point.



Solution

Point M (4, -3)

Point N (2, 2)

Point S (0, -3)

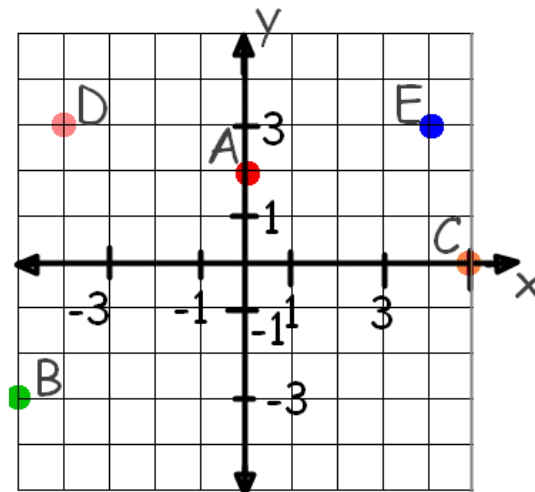
Point T (-5, -2)

Point U (5, 0)

Example 4: Plot the following points on a coordinate plane and state which quadrant they are in:

A (0, 2), B (-5, -3), C (5, 0), D (-3, 3), and E (4, 3)

Solution *remember to move in the x-direction first, then move in the y-direction



Homework:

Read pg. 183 - 185

Pg. 185 #2-23