## P. Cartesian Coordinate System

### Quick Review

1. Find the distance between $\frac{-5}{4}$ and $\frac{3}{2}$.

Use a calculator to evaluate the expression. Round answers to two decimal places.

2. $\sqrt{8^2+6^2}$
3. $\frac{-12+8}{2}$
4. $\sqrt{3^2+5^2}$
5. $\sqrt{(2-5)^2+(1-3)^2}$

Sep 5-5:30 PM

### Quick Review Solutions

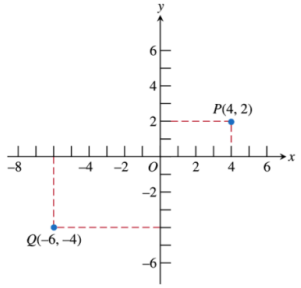
1. Find the distance between $\frac{-5}{4}$ and $\frac{3}{2}$. 2.75

Use a calculator to evaluate the expression. Round answers to two decimal places.

2. $\sqrt{8^2+6^2}$ 10
3. $\frac{-12+8}{2}$ -2
4. $\sqrt{3^2+5^2}$ 5.83
5. $\sqrt{(2-5)^2+(1-3)^2}$ 3.61

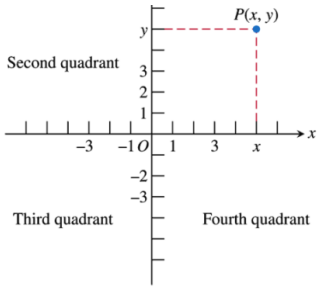
Sep 5-5:32 PM

### The Cartesian Coordinate Plane




Sep 5-5:33 PM

### Quadrants




Sep 5-5:34 PM

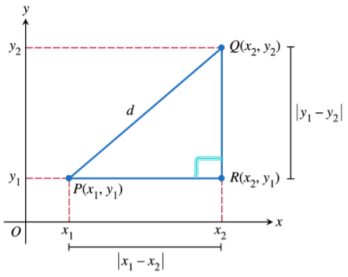
## Absolute Value of a Real Number

The **absolute value of a real number** $a$ is

$$|a| = \begin{cases} a, & \text{if } a > 0 \\ -a & \text{if } a < 0. \\ 0, & \text{if } a = 0 \end{cases}$$

Sep 5-5:35 PM

## The Distance Formula using the Pythagorean Theorem




## Distance Formula (Coordinate Plane)

The **distance $d$ between points $P(x_1, y_1)$ and $Q(x_2, y_2)$** in the coordinate plane is $d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$.

Sep 5-5:35 PM

## Midpoint Formula (Coordinate Plane)

The **midpoint of the line segment with endpoints $(a, b)$ and $(c, d)$** is $\left(\frac{a+c}{2}, \frac{b+d}{2}\right)$.

Sep 5-5:38 PM

## Standard Form Equation of a Circle

The **standard form equation of a circle** with center $(h, k)$ and radius $r$ is $(x-h)^2 + (y-k)^2 = r^2$.

Sep 5-5:40 PM

## Example **Finding Standard Form Equations of Circles**

Find the standard form equation of the circle with center $(2, -3)$ and radius 4.

$(x-h)^2+(y-k)^2=r^2$

$(x-2)^2+(y--3)^2=4^2$

$(x-2)^2+(y+3)^2=16$

Sep 5-5:40 PM

HW

p20 #1,3,5,

13, 15, 19, 21, 25, 28,

41, 43, 45, 48, 49

Sep 14-8:39 AM