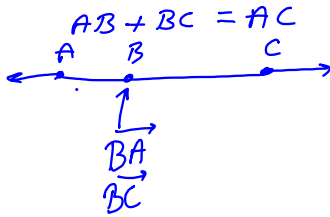


Segment addition

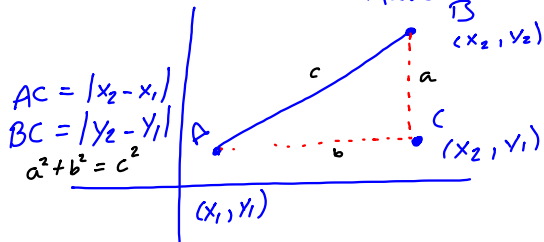


$$x^2 \geq x$$

$$x = \frac{1}{2}$$

$$x^2 = \frac{1}{4}$$

Distance in a coordinate Plane



$$BC^2 + AC^2 = AB^2$$

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

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

Distance Formula

$A = (1, 3)$   $B = (5, 6)$   $C = (-3, 0)$   $D = (-7, 3)$

Find  $AB, BC, CD$

$$AB = \sqrt{(5-1)^2 + (6-3)^2}$$

$$= \sqrt{4^2 + 3^2}$$

$$= \sqrt{16 + 9}$$

$$= \sqrt{25}$$

$$AB = 5$$

$$CD = \sqrt{(-7 - (-3))^2 + (3 - 0)^2}$$

$$= \sqrt{(-4)^2 + (3)^2}$$

$$= \sqrt{16 + 9}$$

$$= \sqrt{25}$$

$$= 5$$

When the distances are the same we say that

$$AB = CD$$

$$\overline{AB} \cong \overline{CD}$$

$$\cong (\text{congruent})$$

Given points P, Q, R

Is  $PQ \cong QR$

$$P(-1, -6) \quad Q(-8, 5) \quad R(3, -2)$$

$$PQ = \sqrt{(-8+1)^2 + (5+6)^2} \quad QR = \sqrt{(3+8)^2 + (-2-5)^2}$$

$$= \sqrt{7^2 + 11^2} \quad = \sqrt{11^2 + 7^2}$$

$$= \sqrt{49 + 121} \quad = \sqrt{170}$$

$$= \sqrt{170} \quad \text{Yes}$$

R21-22

$$4 - 12, \quad 20 - 42, \quad 46 - 50, \quad 53, 54$$