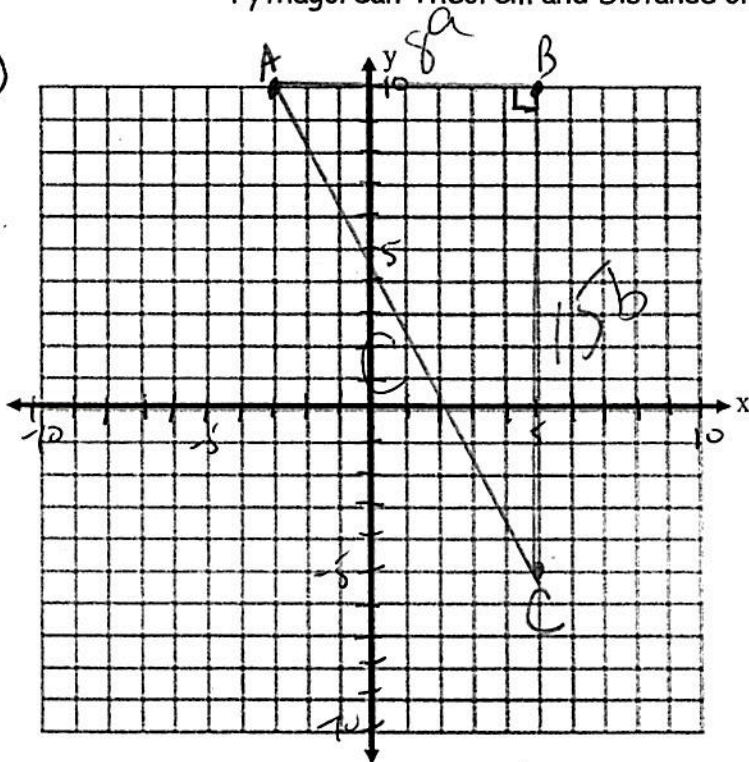


Name Key
Mrs. Roubos

Date _____
8R Period _____

Pythagorean Theorem and Distance on the Coordinate Plane

①



a) Plot the points below and connect them to form right triangle ABC.

A(-3,10) B(5, 10) C(5, -5)

b) Count the unit lengths of sides \overline{AB} and \overline{BC} . Label these lengths on your diagram.

c) Use the Pythagorean Theorem to find the length of the hypotenuse AC.

Show your work here:

$$a^2 + b^2 = c^2$$

$$8^2 + 15^2 = c^2$$

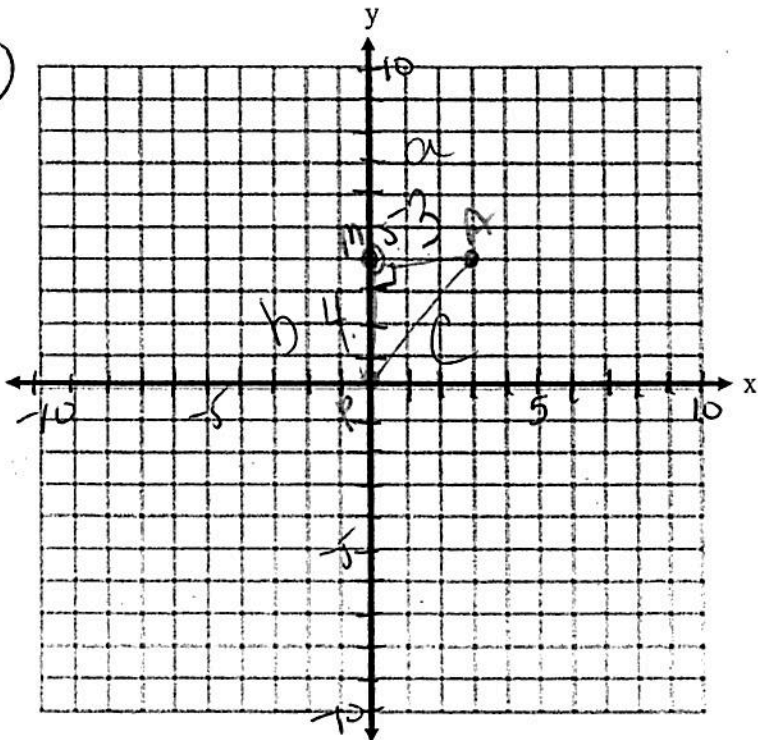
$$64 + 225 = c^2$$

$$\sqrt{289} = c$$

$$c = 17$$

$\overline{AC} = 17$

②



a) Plot the points below and connect them to form right triangle MAP.

M(0,4)
A(3,4)
P(0,0)

b) Find the length of the hypotenuse AP.

Show your work here:

$$a^2 + b^2 = c^2$$

$$3^2 + 4^2 = c^2$$

$$9 + 16 = c^2$$

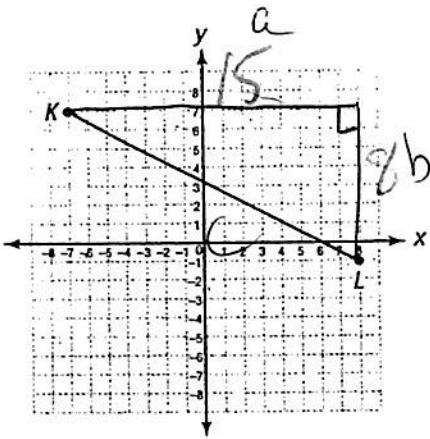
$$\sqrt{25} = c$$

$$c = 5$$

$\overline{AP} = 5$

#3 + #4: Determine the length of each line segment. Show your work.

(3)



$$a^2 + b^2 = c^2$$

$$15^2 + 8^2 = c^2$$

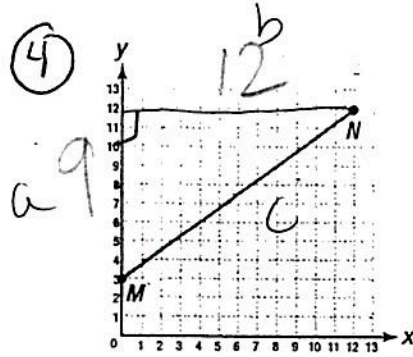
$$225 + 64 = c^2$$

$$\sqrt{289} = c$$

$$c = 17$$

KL = 17

(4)



$$a^2 + b^2 = c^2$$

$$9^2 + 12^2 = c^2$$

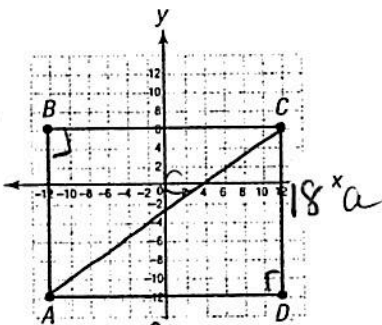
$$81 + 144 = c^2$$

$$\sqrt{225} = c$$

MN = 15

(5)

DRAW Draw a diagonal for rectangle ABCD and calculate its length. Is it possible to draw a different diagonal for this rectangle that has a different length? Explain.



$$a^2 + b^2 = c^2$$

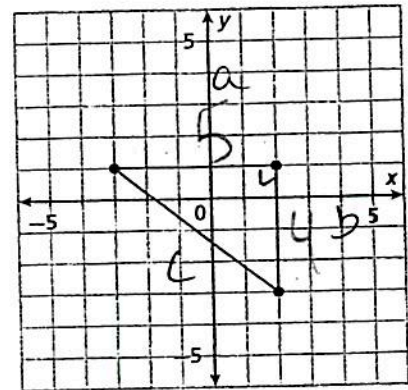
$$18^2 + 24^2 = c^2$$

$$324 + 576 = c^2$$

c = 30 (CA = 30)

(6)

Approximate the length of the hypotenuse to the nearest tenth without using a calculator.



$$a^2 + b^2 = c^2$$

$$5^2 + 4^2 = c^2$$

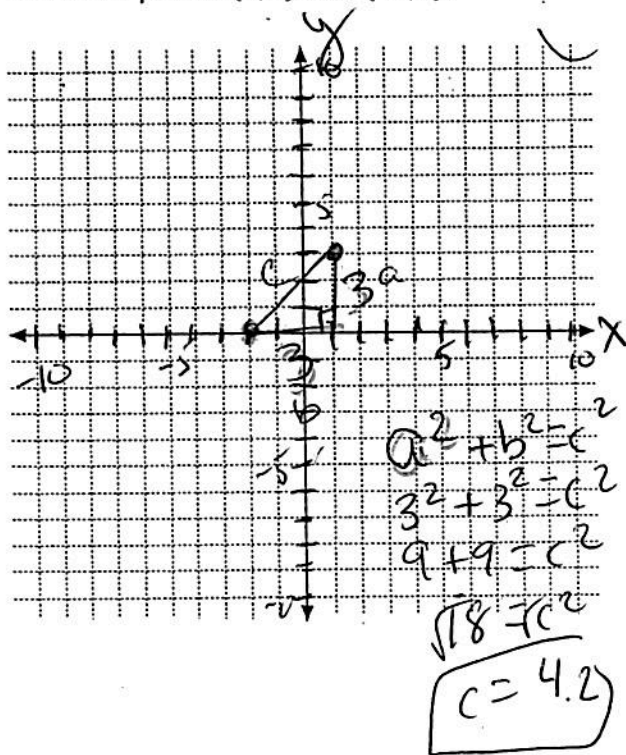
$$25 + 16 = c^2$$

c = 6.4

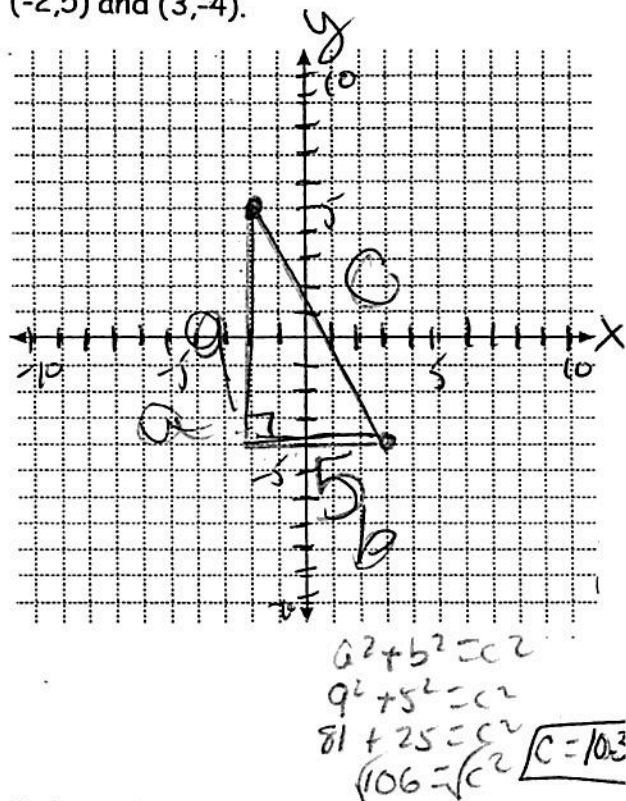
Handwritten notes showing calculations for the square root of 41:
 $30 < \sqrt{41} < 40$
 $\sqrt{36} < \sqrt{41} < \sqrt{49}$
 $6 < \sqrt{41} < 7$
 $36 < 41 < 49$
 $41 - 36 = 5$
 $41 - 49 = -8$
 $\frac{5}{-8} = -0.625$
 $6 - 0.625 = 5.375$
 $5.375^2 = 28.89$
 $5.4^2 = 29.16$
 $5.44^2 = 29.59$
 $5.49^2 = 30.04$

#3 7-10 Plot the points on the coordinate plane.
 Then calculate the distance between the two points.
 Round your answer to the nearest tenth. (where necessary)
 Show your work.

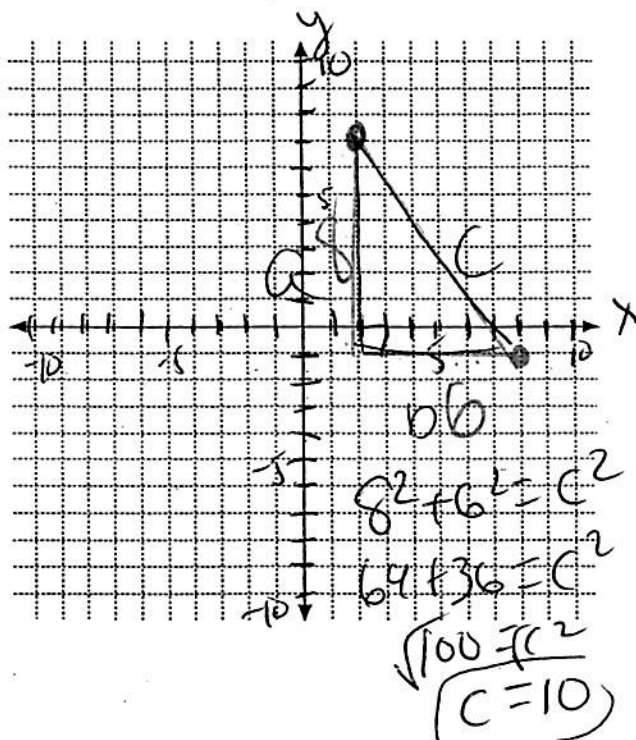
7 Find, to the nearest tenth, the distance between points (1,3) and (-2,0).



8 Find, to the nearest tenth, the distance between two points whose coordinates are (-2,5) and (3,-4).



9 Find the distance between the points whose coordinates are (2,7) and (8,-1).



10 If the endpoints of the diameter of a circle are (3,1) and (6,5), find the length of the diameter.

