

Warm Up

Given quadrilateral $ABCD$ with $A(-3,0)$, $B(3,2)$, $C(4,-1)$ and $D(-2,-3)$, graph the points and find:

a) The slope of each side:

$$AB = \frac{2}{6} = \frac{1}{3} \quad BC = \frac{-3}{1}$$

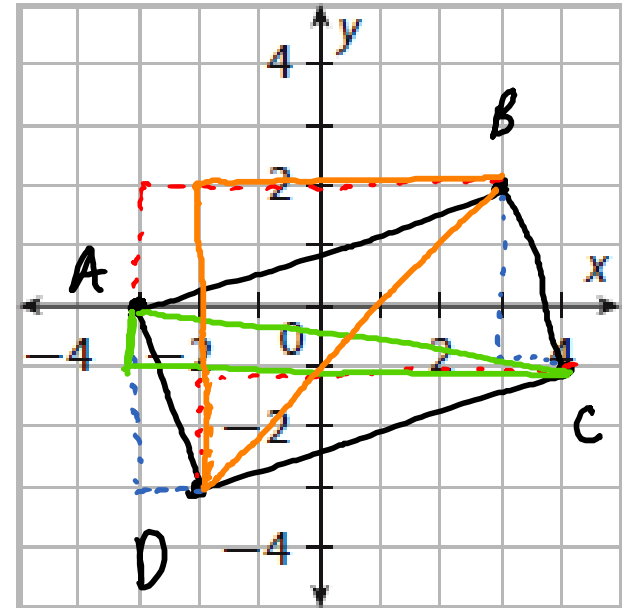
$$CD = \frac{2}{6} = \frac{1}{3} \quad AD = \frac{-3}{1}$$

$$1^2 + 7^2 = x^2$$

$$1 + 49 = x^2$$

$$50 = x^2$$

$$\sqrt{50} = x$$



b) The length of the diagonals: $AC = \sqrt{50}$ $BD = \sqrt{50}$

c) The slope of the diagonals: $AC = \frac{-1}{7}$ $BD = \frac{5}{5} = 1$

d) Is this a rectangle? Why? *yes, $\frac{1}{3}$ and $-\frac{3}{1}$ are opp. recip.*
 Is this a rhombus? Why? *no, $-\frac{1}{7}$ and 1 are not opp. recip.*
 Is this a square? Why? *no, not rhombus*

$$5^2 + 5^2 = x^2$$

$$25 + 25 = x^2$$

$$50 = x^2$$

$$\sqrt{50} = x$$

Classifying Quadrilaterals

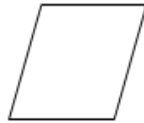
Parallelogram

- Quadrilateral with 2 pairs of parallel sides
- ~~Opposite angles congruent~~
- Opposite sides congruent
- Diagonals bisect each other



Rhombus

- 4 congruent sides
- Diagonals perpendicular
- ~~Diagonals are angle bisectors~~

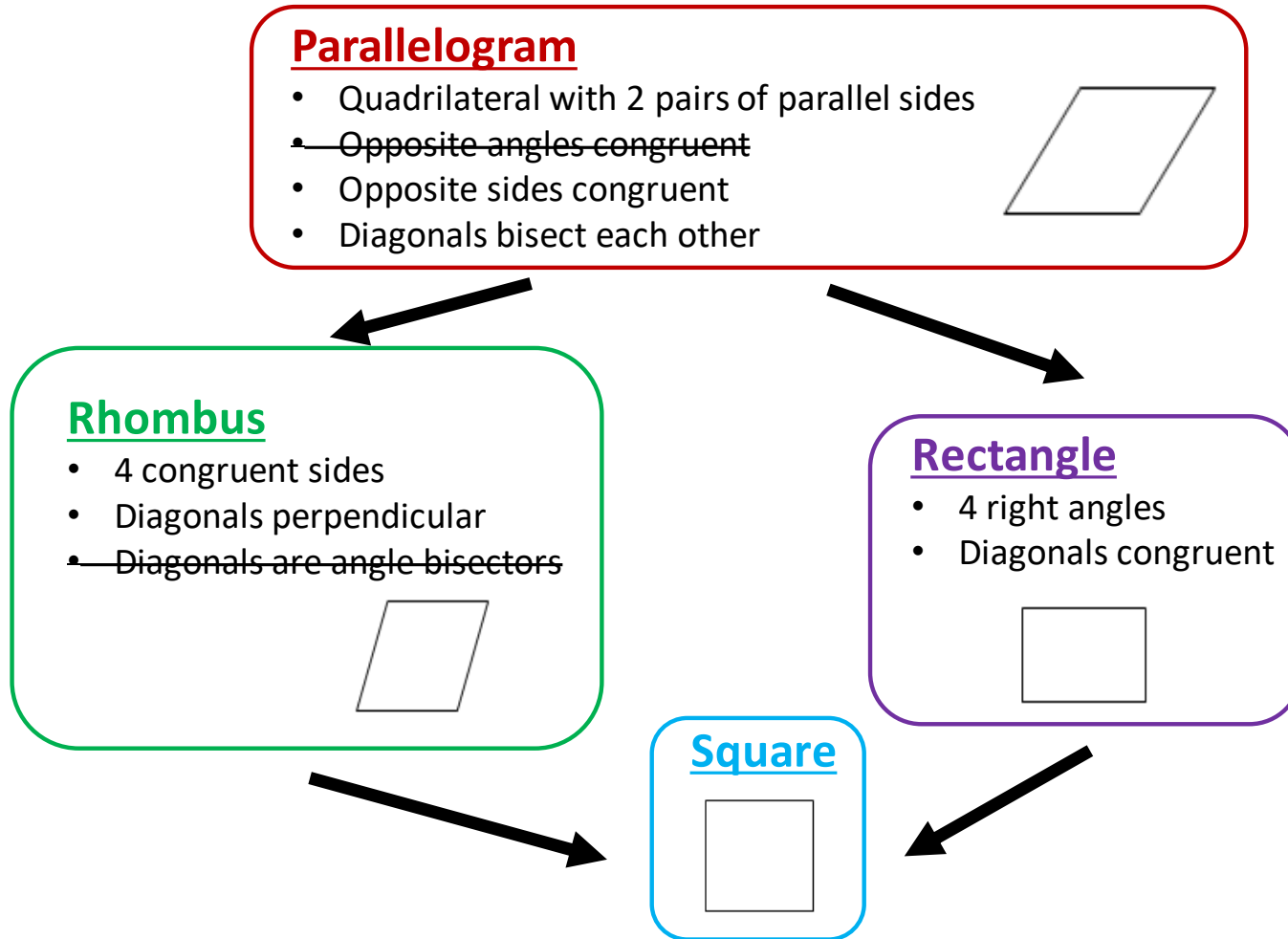


Rectangle

- 4 right angles
- Diagonals congruent

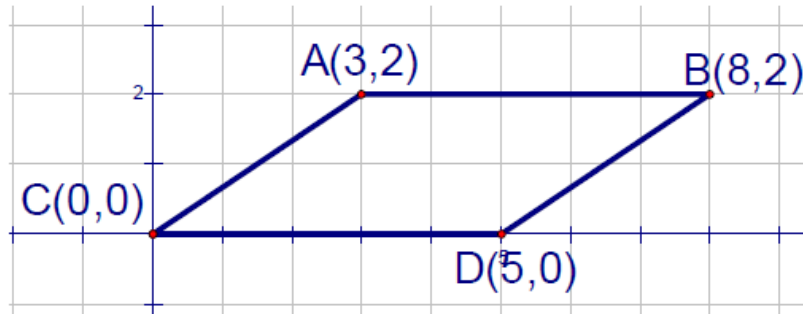


Square



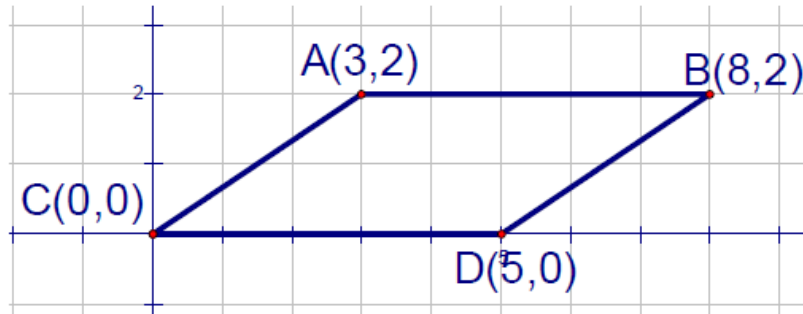
Ex. Quadrilateral $ABDC$ has vertices $A(3,2)$, $B(8,2)$, $D(5,0)$, and $C(0,0)$.

a) Show that $ABDC$ is a parallelogram.



Ex. Quadrilateral $ABDC$ has vertices $A(3,2)$, $B(8,2)$, $D(5,0)$, and $C(0,0)$.

b) Show that the diagonals of $ABDC$ bisect each other.

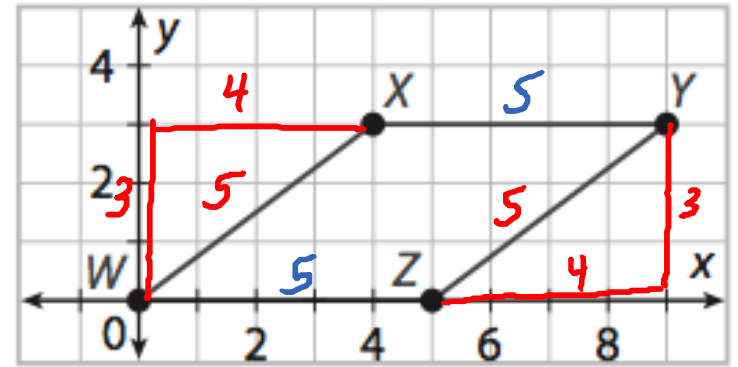


Ex. Is $WXYZ$ a rhombus?

sides equal
distance

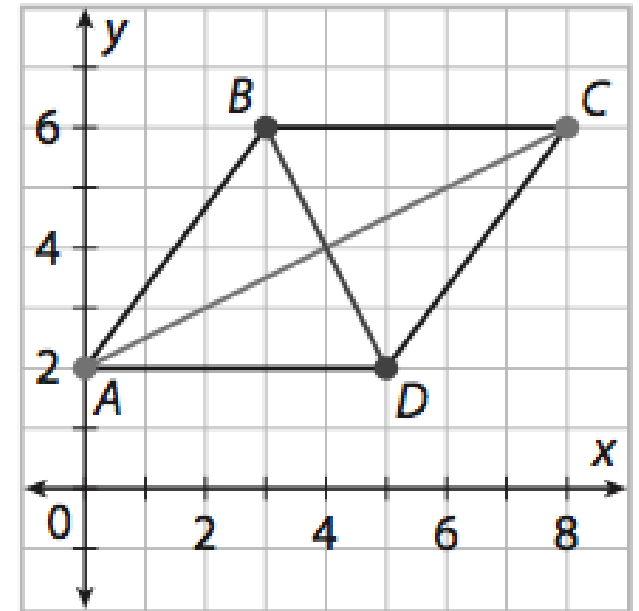
diag. are perp.
slope

yes, all side are equal

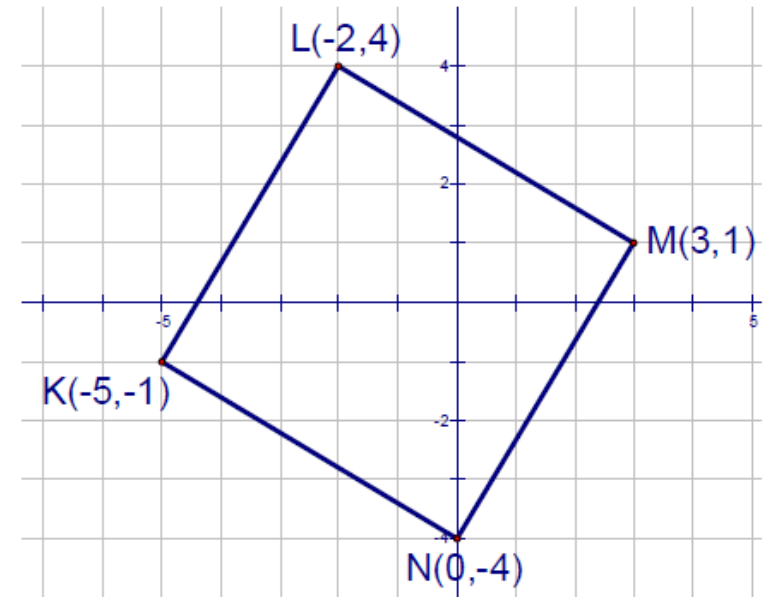


$$3^2 + 4^2 = x^2$$
$$9 + 16 = x^2$$
$$\sqrt{25} = \sqrt{x^2}$$
$$x = 5$$

Ex. Use the diagonals to determine if parallelogram $ABCD$ is a rectangle, rhombus, square, or none of these.



Ex. Use the diagonals to determine if parallelogram $KLMN$ is a rectangle, rhombus, square, or none of these.



City Map Project Rough Draft is due today

By the end of class, you will turn in:

- Score Sheet/Legend (Page 3 of assignment sheet)
 - All item names will be listed in the legend
- Calculations Sheet (Page 4 of assignment sheet)
 - Work should be clearly labeled on a separate sheet
 - Score is based on accuracy of your answers
 - I'm happy to check your answers
- Draft Map (Page 5 of assignment sheet)
 - All items labeled and numbered as in legend
 - Do not color
 - Must include all 26 items from the list on Page 2

DON'T START FINAL DRAFT UNTIL THE ROUGH DRAFT IS RETURNED