

Key with work will be given in class

Geometry (H)

Section - Identifying Quads in the Coordinate Plane

Directions: Graph each quadrilateral then determine the type of quadrilateral: rectangle, rhombus, square or parallelogram. Join the vertices in the given order. Use must use slope or distance to verify the type of quadrilateral.

1. H(-1,3) A(3,2) T(1,-1) S(-3,0)

parallelogram

3. C(-2,1) O(0,2) W(1,0) S(-1,-1)

square

4. K(3,1) I(3,-3) T(-2,-3) E(-2,1)

rectangle

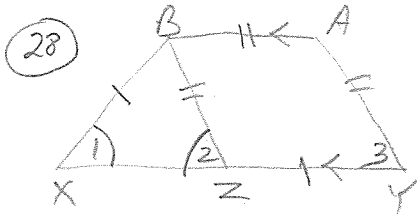
6. C(5,2) A(2,5) K(-1,2) E(2,-1)

square

7. N(5,2) I(1,9) C(-3,2) E(1,-5)

rhombus

Special Parallelograms the KEY



$$\begin{aligned}
 & \textcircled{1} \square ABZY \rightarrow \left. \begin{array}{l} \textcircled{2} \overline{ZY} \cong \overline{BA} \\ \textcircled{3} \overline{ZY} \cong \overline{BX} \end{array} \right\} \rightarrow \textcircled{4} \overline{BA} \cong \overline{BX} \\
 & \textcircled{5} \angle 1 \cong \angle 2 \rightarrow \textcircled{6} \overline{BX} \cong \overline{BZ} \\
 & \left. \begin{array}{l} \textcircled{4} \overline{BA} \cong \overline{BX} \\ \textcircled{6} \overline{BX} \cong \overline{BZ} \end{array} \right\} \rightarrow \textcircled{7} \overline{BA} \cong \overline{BZ} \\
 & \left. \begin{array}{l} \textcircled{7} \overline{BA} \cong \overline{BZ} \\ \textcircled{8} \square ABZY \end{array} \right\} \rightarrow \textcircled{9} ABZY \text{ is a rhombus}
 \end{aligned}$$

① Given

② $\square \rightarrow$ opp sides \cong .

③ Given

④ Transitive Prop

⑤ Given

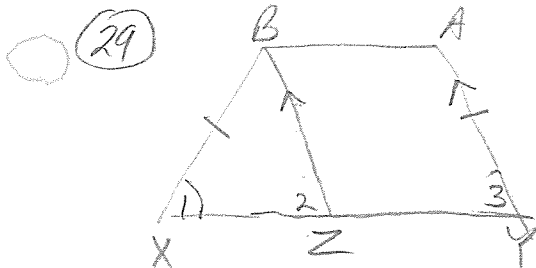
⑥ If 2 sides of $\Delta \cong \rightarrow$ sides opp \cong .

⑦ Transitive Prop

⑧ Given

⑨ $\square \rightarrow$ if 2

consecutive sides \cong
 \rightarrow a rhombus.



$$\begin{aligned}
 & \textcircled{1} \square ABZY \rightarrow \left. \begin{array}{l} \textcircled{2} \overline{AY} \cong \overline{BZ} \\ \textcircled{3} \overline{AY} \cong \overline{BX} \end{array} \right\} \rightarrow \textcircled{4} \overline{BZ} \cong \overline{BX} \rightarrow \textcircled{5} \angle 1 \cong \angle 2 \\
 & \left. \begin{array}{l} \textcircled{4} \overline{BZ} \cong \overline{BX} \\ \textcircled{6} \overline{AY} \parallel \overline{BZ} \rightarrow \textcircled{7} \angle 2 \cong \angle 3 \end{array} \right\} \rightarrow \textcircled{8} \angle 1 \cong \angle 3
 \end{aligned}$$

① Given

② $\square \rightarrow$ opp sides \cong .

③ Given

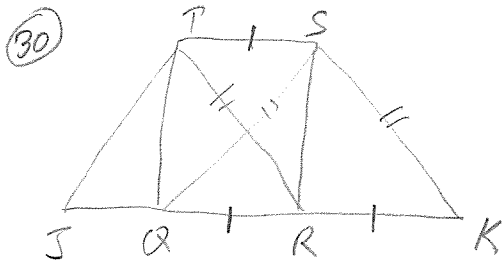
④ Transitive prop.

⑤ If 2 sides of a $\Delta \cong$,
 then 2 \angle s opp \cong .

⑥ $\square \rightarrow$ opp sides \parallel

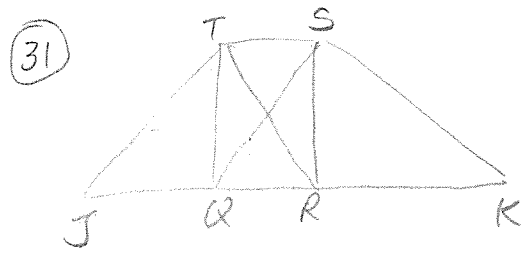
⑦ 2 \parallel lines \rightarrow corresp. \angle s \cong .

⑧ Transitive prop.



① Rectangle QRST \rightarrow ② $\overline{QS} \cong \overline{TR}$
 ③ \square RKST \rightarrow ④ $\overline{SK} \cong \overline{TR}$ } \rightarrow ⑤ $\overline{QS} \cong \overline{SK} \rightarrow$ ⑥ $\triangle QSK$ is isosceles.

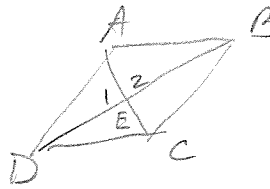
- ① Given
- ② In a rectangle \rightarrow diagonals are \cong .
- ③ Given
- ④ \square \rightarrow opp sides \cong .
- ⑤ Transitive Prop.



① Rect. QRST \rightarrow ② $\overline{QS} \cong \overline{TR}$
 ③ \square RKST \rightarrow ④ $\overline{TR} \cong \overline{SK}$ } \rightarrow ⑤ $\overline{QS} \cong \overline{SK}$
 ⑥ \square JRST \rightarrow ⑦ $\overline{JT} \cong \overline{QS}$ } \rightarrow ⑧ $\overline{JT} \cong \overline{KS}$

- ① Given
- ② In a rect. \rightarrow diagonals \cong .
- ③ Given
- ④ \square \rightarrow opp sides \cong .
- ⑤ Transitive Prop
- ⑥ Given
- ⑦ \square \rightarrow opp sides \cong
- ⑧ Transitive Prop.

34) Given: $\square ABCD$
 $AC \perp BD$



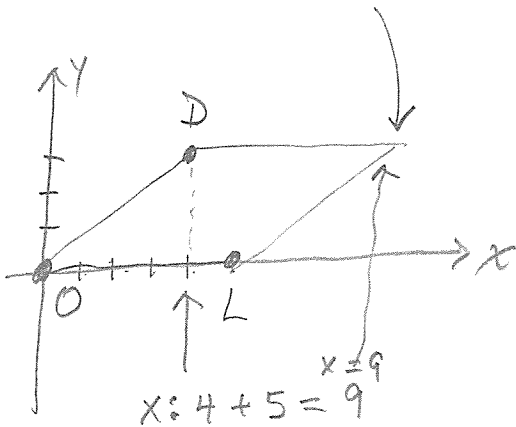
Prove: $ABCD$ is a rhombus

use: If a \square has consecutive \cong sides \rightarrow then a rhombus.

- ① $AC \perp BD \rightarrow$ ② $\angle 1$ is Rt
 $\angle 2$ is Rt } \rightarrow ③ $\angle 1 \cong \angle 2$
- ④ $\square ABCD \rightarrow$ ⑤ AC bisects BD . \rightarrow ⑥ $DE \cong EB$
 ⑦ $AE \cong AE$ } \rightarrow ⑧ $\triangle ADE \cong \triangle ABE$
- \rightarrow ⑨ $AD \cong AB$ } \rightarrow ⑩ $\square ABCD$ is a rhombus.

- | | | |
|--|------------------------|------------------------------|
| ① Given | ⑥ Def of seg. bisector | ⑩ A rhombus is a |
| ② Def of \perp lines | ⑦ Reflexive prop. | \square with 2 consecutive |
| ③ All rt \angle s \cong . | ⑧ SAS \cong SAS | sides \cong . |
| ④ Given | ⑨ CPCTC | |
| ⑤ $\square \rightarrow$ diag. bisect each other. | ⑩ Given | |

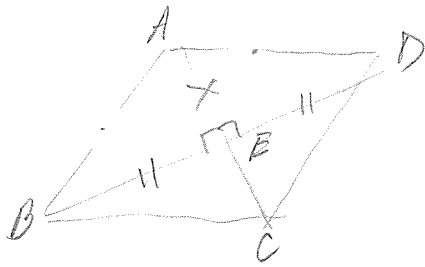
38) Answer: (9, 3)



$DO = 5$
 $OL = 5$

next page \rightarrow

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Given: $\square ABCD$

$AC \perp BD$

(using definition)

(Shorter to use thm: \square w/ 2 consecutive sides \cong)

① $\square ABCD \rightarrow$ ② $\overline{BE} \cong \overline{ED}$

③ $AC \perp BD \rightarrow$ ④ $\angle AED$ & $\angle AEB$ are right \rightarrow ⑤ $\angle AED \cong \angle AEB$

⑥ $\overline{AE} \cong \overline{AE}$

\rightarrow ⑦ $\triangle AED \cong \triangle AEB$

\rightarrow ⑧ $\overline{AD} \cong \overline{AB}$

\rightarrow ⑨ $\overline{BE} \cong \overline{ED}$

⑩ $\angle BEC$ & $\angle DEC$ are $\text{rt } \angle$ s. \rightarrow ⑪ $\angle BEC \cong \angle DEC$

⑫ $\overline{EC} \cong \overline{EC}$

\rightarrow ⑬ $\triangle BEC \cong \triangle DEC$

\rightarrow ⑭ $\overline{BC} \cong \overline{CD}$

\rightarrow ⑮ $\overline{AE} \cong \overline{EC}$

\rightarrow ⑯ $\angle AED \cong \angle CED$

⑰ $\overline{DE} \cong \overline{DE}$

\rightarrow ⑱ $\triangle AED \cong \triangle CED$

\rightarrow ⑲ $\overline{AD} \cong \overline{CD}$

⑳

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

\rightarrow ㉑ $\square ABCD$ is a rhombus