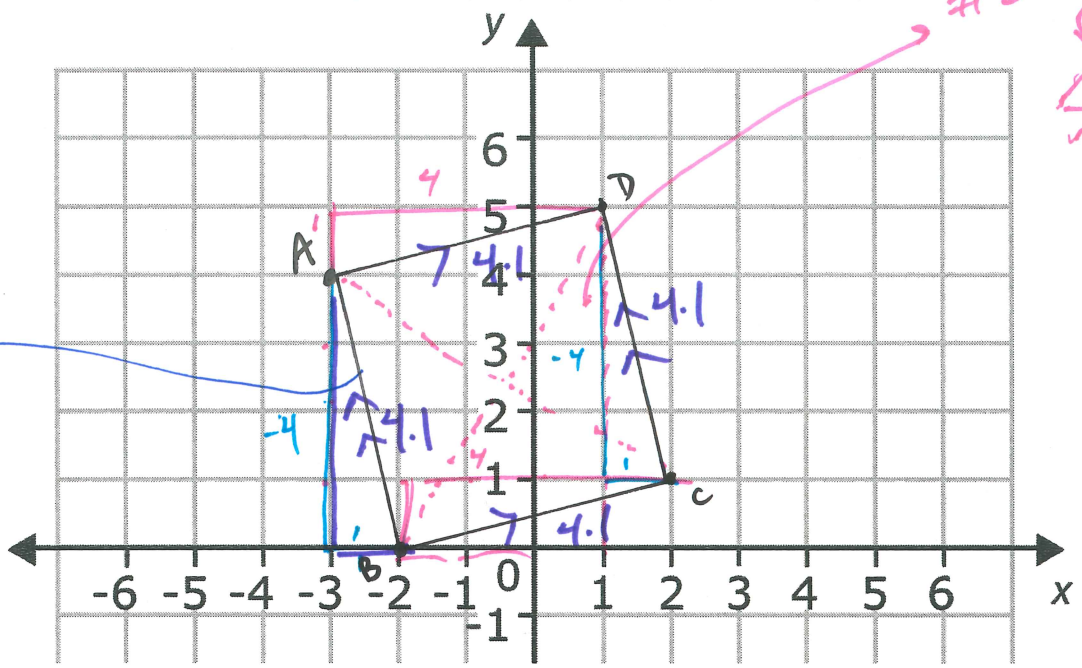
Sols

GPE-B4a

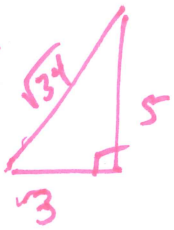
Practice Assessment

Classify the quadrilateral formed by the points A(-3,4) B(-2,0) C(2,1) and D(1,5).



#3

#2b



1. Is ABCD a parallelogram? Justify your answer with numbers.

Show slope of $\overline{AD}$ = slope of $\overline{BC}$ → $\frac{rise}{run}$: $\frac{1}{4} = \frac{1}{4}$ → $\overline{AD} \parallel \overline{BC}$

" $\overline{AB}$ = " $\overline{DC}$

$\frac{rise}{run}$: $\frac{-4}{1} = \frac{-4}{1}$ → $\overline{AB} \parallel \overline{DC}$

yes, ABCD is a parallelogram. • 11 sides are parallel.

2. Is ABCD a rectangle? Justify your answer with numbers.

2A Show sides slopes are ⊥

$m_{\overline{AD}} = \frac{1}{4}$ $m_{\overline{DC}} = \frac{-4}{1}$

opp. reciprocal, so ⊥. Therefore, ABCD is a rectangle.

2B Show that diagonals are ≅ — two options (same slope)

→ use Pythag. to find length of $\overline{AC}$ & $\overline{BD}$.

$\overline{AC}$: $\sqrt{34}$ = $\overline{BD}$: $\sqrt{34}$

3. Is ABCD a rhombus? Justify your answer with numbers.

either show all sides ≅ or show diagonals slopes ⊥.

Distance:

$\overline{AB}$: $1^2+4^2=c^2$ → $17=c^2$ → $\sqrt{17}=c \approx 4.1$

$\overline{BC}$: $\sqrt{17} \approx 4.1$

$\overline{CD}$: $\sqrt{17} \approx 4.1$

$\overline{AD}$: $\sqrt{17} \approx 4.1$

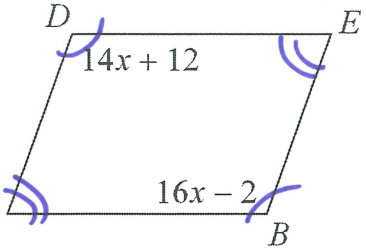
⟹ All 4 sides ≅ therefore ABCD is a rhombus.

4. What is the most specific name for ABCD? Explain.

ABCD is a SQUARE, it meets the criteria for a parallelogram (#1), rectangle (#2), and rhombus (#3).

CO-C11a

5. CDEB is a parallelogram. Find the measure of $\angle E$



opp ∠'s ≅ , consecutive ∠'s = 180°

$14x + 12 = 16x - 2$

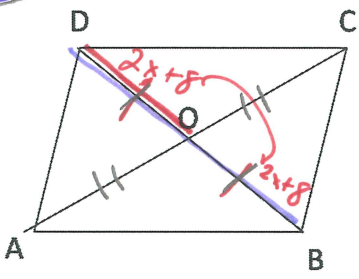
$14 = 2x$

$7 = x$ → plug in

$\angle B = 16(7) - 2 = 110°$

So $\angle E = 180 - 110 = 70°$

6. ABCD is a parallelogram with diagonals crossing at O. Suppose $DB = 6x + 12$ and $DO = 2x + 8$. Find the length of $\overline{OB}$.



Diagonals bisect each other

DB = DO + OB

$6x + 12 = 2x + 8 + 2x + 8$

$6x + 12 = 4x + 16$

$2x = 4$

$x = 2$

$\overline{OB} \cong \overline{DO}$

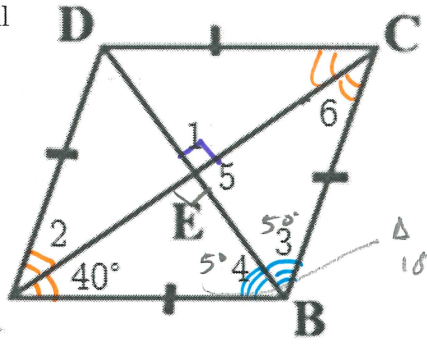
$2(2) + 8 = 4 + 8 = 12$

CO-C11b

7. ABCD is a rhombus. Match the equal values in the lists below. Not all the measures will be used, and some are used more than once.

Angles	Measures
1	40°
2	50°
3	30°
4	45°
5	90
6	60°

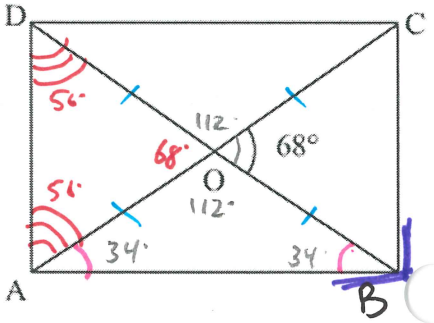
Rhombus diagonals: → ⊥ → angle bisectors



△ make 180°

8. ABCD is a rectangle with diagonals crossing at O. Find measures of:

$\angle CAB$: 34° $\angle BDA$: 56° $\angle ABC$: 90°



SRT-B5b

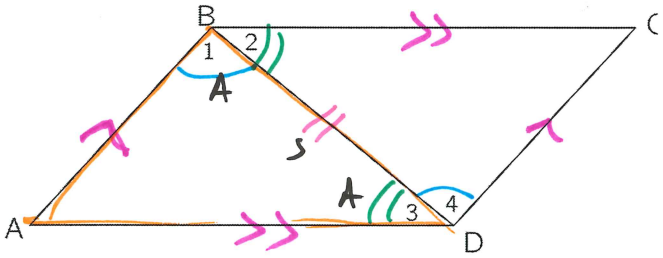
9. Complete the proof using the choices provided. Use as many steps as needed.

GIVEN: $\overline{AB} \parallel \overline{CD}$ and $\overline{BC} \parallel \overline{DA}$ PROVE: $\overline{AB} \cong \overline{CD}$

MARK THE GIVEN!

Statements	Reasons
1. $\overline{AB} \parallel \overline{CD}$ and $\overline{BC} \parallel \overline{DA}$	1. Given
2. $\overline{BD} \cong \overline{BD}$	2. Reflexive Prop.
3. $\angle 1 \cong \angle 4$, $\angle 2 \cong \angle 3$	3. Alt. Int. Angles
4. $\triangle ABD \cong \triangle CDB$	4. ASA
5. $\overline{AB} \cong \overline{CD}$	5. CPCTC

Q.E.D.



Statement and Reason Choices, feel free to ignore (some are distractors)

Vertical Angles | Alternate Interior Angles | ASA | AAS | SSS | HL | SAS | Reflexive Property

$\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$ | $\angle 1 \cong \angle 4$ and $\angle 2 \cong \angle 3$ | Def of bisect | $\overline{DB} \cong \overline{BD}$ | $\angle A \cong \angle C$

$\overline{AB} \cong \overline{CD}$ | $\triangle ABD \cong \triangle CDB$ | $\triangle BDA \cong \triangle BDC$ | CPCTC