29) x = 7, 7, 7 30) x=7, 26, 26 31) 96, 84 32) 101, 79 33) 67, 113

34) x = 4 35) x = 16, y = 116 36) x = 1

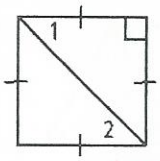
40) x = 10, LM=16, TU=24, QP=32 41) x=3, BC=27, TU=19.5, KH=12

4) rhombus, x=2, y=10 5) rectangle, x = 4, y = 8 6) isos. Trap., x = 3 7) kite, x = 7, y = 30

Lessons 6-4 and 6-5

For each parallelogram, determine the most precise name and find the measures of the numbered angles.

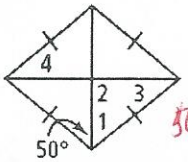
1.



45°

~~Rhombus~~ Square

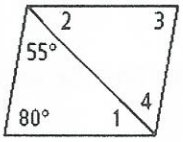
2.



rhombus

50, 90, 40, 40

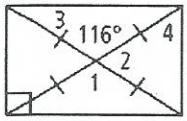
3.



45, 45, 80, 55

parallelogram

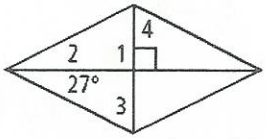
4.



116, 64, 32, 58

rectangle

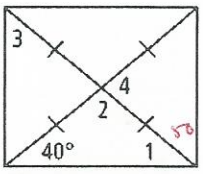
5.



90, 27, 63, 63

rhombus

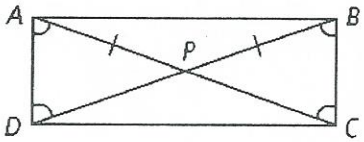
6.



rectangle

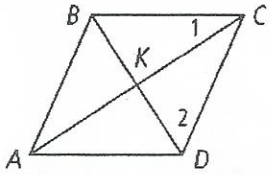
40, 100, 50, 80

7. Use the information in the figure. Explain how you know that *ABCD* is a rectangle. Explain.



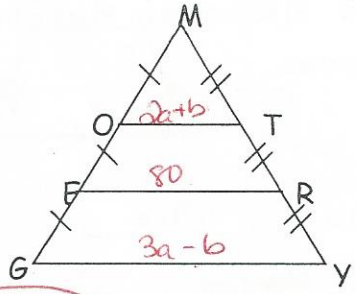
diag. bis. each other and are ≅

8. □*ABCD* is a rhombus. What is the relationship between ∠1 and ∠2?



complementary

16. If OT= 2a + b and ER = 80, and GY=3a-b, find a, b, & GY.



$2a+b+3a-b=160$

$5a=160$

$a=32$

$2(2a+b)=80$

$4a+2b=80$

$4(32)+2b=80$

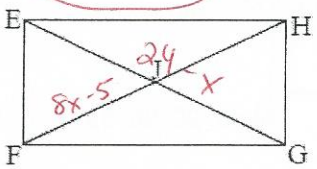
$128+2b=80$

$2b=-48$

$b=-24$

$GY=120$

17. Quadrilateral EFGH is a rectangle. Find the value of x.
JF = 8x – 5, EG = 24 – x



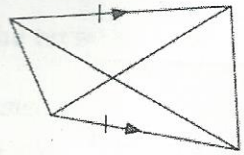
$2(8x-5)=24-x$

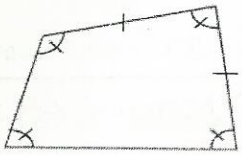
$16x-10=24-x$

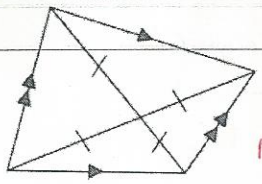
$17x=34$

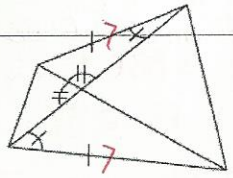
$x=2$

What is it? Pick the most specific name as possible.

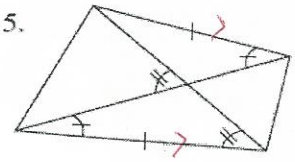
1.  ||gm

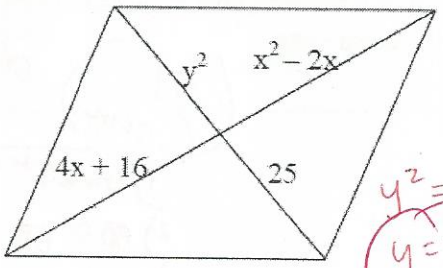
2.  square

3.  rectangle

4.  rhombus

Find the values of x and y that ensure the quadrilateral is a parallelogram.

5.  impossible



$y^2 = 25$ $y = 5$

$x^2 - 2x = 4x + 16$

$x^2 - 6x - 16 = 0$

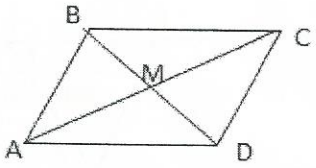
$(x+2)(x-8) = 0$

$x = -2, 8$

11 - 12 Answer with Sometimes, Always or Never.

1. A trapezoid is ___N___ a parallelogram.
2. Both pairs of opposite angles of a rhombus are ___A___ congruent.
3. Diagonals of a trapezoid are ___N___ perpendicular.
4. Consecutive angles of a rhombus are ___S___ supplementary and congruent.
5. Consecutive angles of a trapezoid are ___S___ congruent. Why?

(Use parallelogram ABCD for #6-9.)



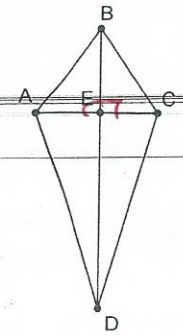
6. $\overline{AB} \cong \overline{BC}$ ___S___
7. $\overline{AC} \perp \overline{BD}$ ___S___
8. $\Delta ABC \cong \Delta CDA$ ___A___
9. $\angle BAD$ & $\angle ABC$ are complementary ___N___
10. Find the best name for parallelogram ABCD using the given information:

a. M is the midpoint of $\overline{AC}$ & $\overline{DB}$ ___||gm___

b. $\overline{AC} \perp \overline{DB}$ ___rhombus___

2. Given: ABCD is a kite with $\overline{AB} \cong \overline{BC}, \overline{AD} \cong \overline{CD}$

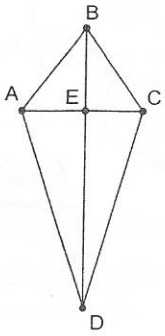
Prove: $\overline{BD}$ bisects $\overline{AC}$



S	R
1) ABCD is a kite w/ $\overline{AB} \cong$ ...	1) Given
2) $\overline{BD} \perp \overline{AC}$	2) if it is a kite, then diag. $\perp$
3) $\angle AEB$ and $\angle CEB$ are right, $\perp$s	3) Defn. $\perp$
4) $\overline{BE} \cong \overline{BE}$	4) Reflexive
5) $\triangle AEB$ and $\triangle CEB$ are right $\triangle$s	5) Defn. right $\triangle$
6) $\triangle ABE \cong \triangle CBE$	6) HL
7) $\overline{AE} \cong \overline{CE}$	7) CPCTC
8) $\overline{BD}$ bis. $\overline{AC}$	8) Defn. bisect

3. Given: ABCD is a kite with $\overline{AB} \cong \overline{BC}, \overline{AD} \cong \overline{CD}$

Prove: $\overline{BD}$ bisects $\angle ABC$

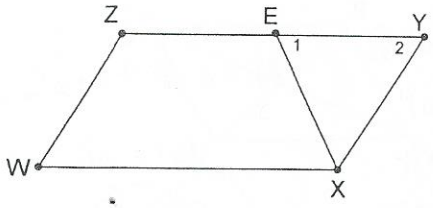


(1 same) OR

S	R
1) Given write out $\overline{AB} \cong \overline{BC}; \overline{AD} \cong \overline{CD}$	1) Given
2) $\overline{BD} \cong \overline{BD}$	2) Reflexive
3) $\triangle ABD \cong \triangle CBD$	3) SSS
4) $\angle ABE \cong \angle CBE$	4) CPCTC
5) $\overline{BD}$ bis. $\angle ABC$	5) Defn. bisect.

5. Given: WXYZ is a parallelogram, $\angle 1 \cong \angle 2$

Prove: WXEZ is an isosceles trapezoid



S	R
1) WXYZ $\parallel$gm ; $\angle 1 \cong \angle 2$	1) Given
2) $\overline{ZE} \parallel \overline{WX}$	2) defn. $\parallel$gm
3) $\overline{EX} \cong \overline{YX}$	3) Conv. of Isos. $\triangle$ thm
4) $\overline{YX} \cong \overline{ZW}$	4) In a $\parallel$gm, opp. sides $\cong$
5) $\overline{EX} \cong \overline{ZW}$	5) Transitive
6) WXEZ is isos. trap	6) Defn. isos trap.