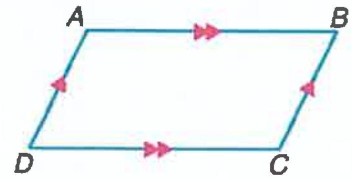
ATTACH 6.1 – INVESTIGATING PARALLELOGRAMS

6.1 – PARALLELOGRAMS ON THE COORDINATE PLANE

Objectives:

- Show that a quadrilateral is a parallelogram on the coordinate plane
- Identify and verify parallelograms



❖ Parallelograms

- ➢ A parallelogram is a quadrilateral with both pairs of opposite sides parallel.
  - $\overline{AB} \parallel \overline{DC}$ & $\overline{AD} \parallel \overline{BC}$

DISTANCE FORMULA:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

MIDPOINT FORMULA:

$$(x_m, y_m) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

SLOPE FORMULA:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

❖ Proving Parallelograms on the Coordinate Plane

- ➢ Show that both pairs of opposite sides are parallel.
  - How using coordinates?

    use the slope formula

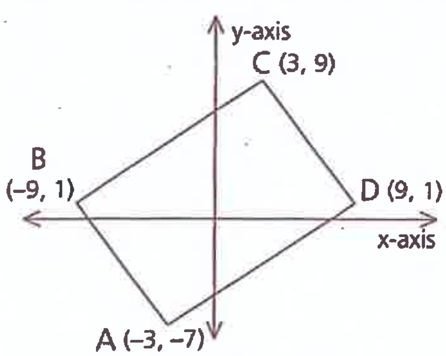
    parallel lines = same slope
- ➢ Show that both pairs of opposite sides are congruent.
  - How using coordinates?

    use distance formula to find side lengths
- ➢ Show that ONE pair of opposite sides is both parallel AND congruent.
- ➢ Show that the diagonals bisect each other.
  - How using coordinates? use the midpoint formula to find the midpoint of each diagnol

    same midpoint = bisects

EXAMPLE:

1. Show that *ABCD* is a parallelogram.



midpt of $\overline{AC}$ $= \left(\frac{-3+3}{2}, \frac{-7+9}{2}\right) = (0,1)$ ✱

midpt of $\overline{BD}$ $= \left(\frac{-9+9}{2}, \frac{1+1}{2}\right) = (0,1)$ ✱

same midpoint therefore $\overline{AC}$ & $\overline{BD}$ bisect each other & ABCD is a //ogram!

6.2 – PROPERTIES OF PARALLELOGRAMS

Objectives:

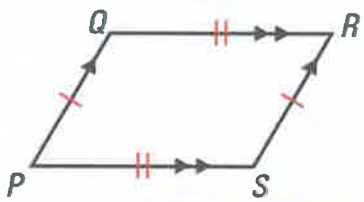
- Know and prove the properties of parallelograms
- Apply the properties of parallelograms to find side lengths, segment lengths, and angle measures

❖ Parallelograms

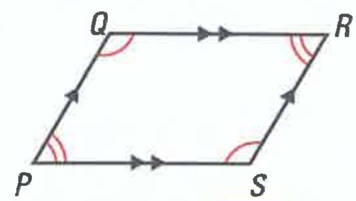
- ➢ A parallelogram is a quadrilateral with both pairs of opposite sides parallel.
  - $\overline{AB} \parallel \overline{DC}$ & $\overline{AD} \parallel \overline{BC}$

❖ Properties of Parallelograms

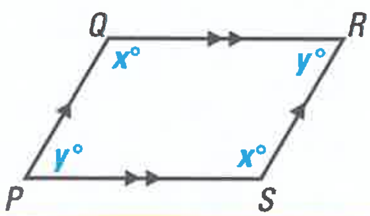
- ➢ If a quadrilateral is a parallelogram, then...
  - Both pairs of opposite sides are congruent
    - $\overline{PQ} \cong \overline{SR}$ & $\overline{QR} \cong \overline{PS}$



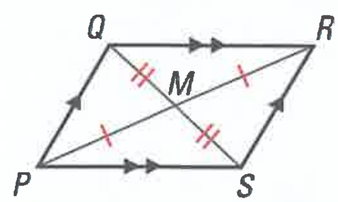
  - Both pairs of opposite angles are congruent
    - $\angle Q \cong \angle S$ & $\angle P \cong \angle R$



  - Consecutive angles are supplementary
    - $x° + y° = 180°$



  - The diagonals bisect each other
    - $\overline{QM} \cong \overline{MS}$ & $\overline{PM} \cong \overline{MR}$

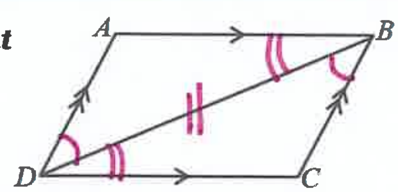


THE SUM OF ALL FOUR ANGLES IN ANY QUADRILATERAL IS 360°.

❖ ***Prove that both pairs of opposite angles are congruent***

Given: *ABCD* is a parallelogram

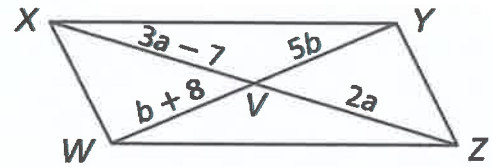
Prove: $\angle A \cong \angle C$ & $\angle ABC \cong \angle ADC$



STATEMENTS	REASONS
1. *ABCD* is a parallelogram	1. Given
2. $\overline{AB} \parallel \overline{DC}$ & $\overline{AD} \parallel \overline{BC}$	2. Definition of parallelogram
3. $\angle ADB \cong \angle CBD$	3. } Alt. int. ∠s are ≅
4. $\angle ABD \cong \angle CDB$	4. }
5. $\overline{BD} \cong \overline{DB}$	5. Reflexive
6. $\triangle ABD \cong \triangle CDB$	6. ASA
7. $\angle A \cong \angle C$	7. CPCTC
8. $\angle ABC \cong \angle ADC$	8. Angle Add. Property

EXAMPLES: USING THE PROPERTIES OF PARALLELOGRAMS

1. *WXYZ* is a parallelogram. Find each measure.



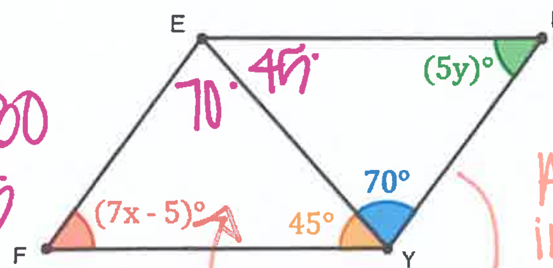
   a. WV = 10
   b. YW = 20
   c. XZ = 28
   d. ZV = 14

$3a-7=2a$
$+7=+a$

$b+8=5b$
$8=4b$
$2=b$

* Diagnoles BISECT each other

2. *FEDY* is a parallelogram. Find the value of each variable.



$7x+110=180$
$7x=70$
$x=10$

$5y+115=180$
$5y=65$
$y=13$

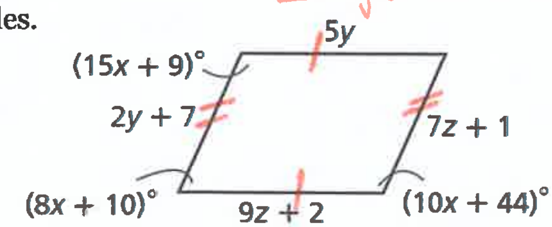
70° 45°

Alt. int. ∠s are ≅

△ sum = 180°

∠FYE ≅ ∠DEY

3. For the given parallelogram, find the value of the variables.



opp. sides are ≅

$15x+9=10x+44$
$5x=35$
$x=7$

$z=2$
$y=4$

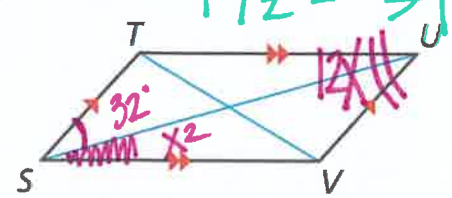
$2y+7=7z+1$ $\quad$ $5y=9z+2$

$5(2y-7z=-6)$ $\quad$ $-2(5y-9z=2)$

$10y-35z=-30$
$+\ -10y+18z=-4$
$-17z=-34$

$5y-18=2,\ 5y=20$

4. In *STUV*, $m\angle TSU = 32°$, $m\angle USV = x^2$, $m\angle TUV = 12x$, and $\angle TUV$ is an acute angle. Find the value of x (that makes sense) and $m\angle USV$.



$x^2+32=12x$
$x^2-12x+32=0$
$(x-8)(x-4)=0$
$x=8$ & 4

$x=4$
$m\angle USV=16$

∠TSV ≅ ∠TUV
opp. ∠s are ≅

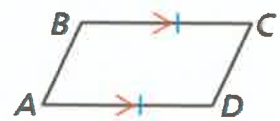
6.3 – PROVING QUADRILATERALS ARE PARALLELOGRAMS

Objectives:

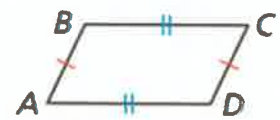
- Prove that a quadrilateral is a parallelogram
- Identify and verify parallelograms

❖ **Conditions for Parallelograms**

- **If both pairs of opposite sides of a quadrilateral are parallel, then the quadrilateral is a parallelogram. (Definition)**
- **If one pair of opposite sides of a quadrilateral is parallel and congruent, then the quadrilateral is a parallelogram.**
  - If $\overline{BC} \parallel \overline{AD}$ and $\overline{BC} \cong \overline{AD}$, then $ABCD$ is a parallelogram.

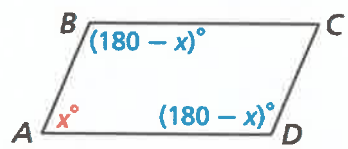


- **If both pairs of opposite sides of a quadrilateral are congruent, then the quadrilateral is a parallelogram.**
  - If $\overline{BC} \cong \overline{AD}$ and $\overline{AB} \cong \overline{CD}$, then $ABCD$ is a parallelogram.

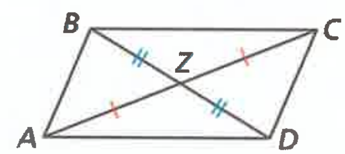


- **If both pairs of opposite angles of a quadrilateral are congruent, then the quadrilateral is a parallelogram.**
  - If $\angle A \cong \angle C$ and $\angle B \cong \angle D$, then $ABCD$ is a parallelogram.

- **If an angle of a quadrilateral is supplementary to both of its consecutive angles, then the quadrilateral is a parallelogram**
  - If $\angle A$ is supplementary to $\angle B$ and $\angle A$ is supplementary to $\angle D$, then $ABCD$ is a parallelogram.



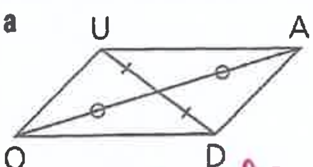
- **If the diagonals of a quadrilateral bisect each other, then the quadrilateral is a parallelogram.**
  - If $\overline{AZ} \cong \overline{ZC}$ and $\overline{BZ} \cong \overline{ZD}$, then $ABCD$ is a parallelogram.



EXAMPLES: IDENTIFYING PARALLELOGRAMS

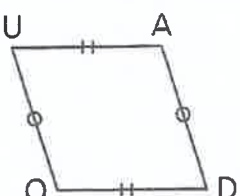
1. For each quadrilateral $QUAD$, state the property or definition that proves that $QUAD$ is a parallelogram.

a



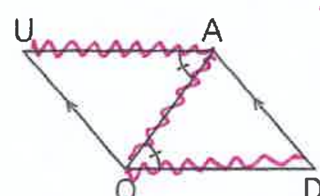
diagonals bisect each other

c



both pairs of opp. sides are ≅

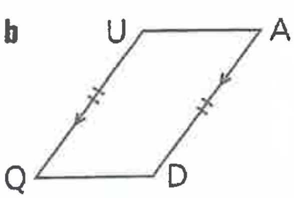
e



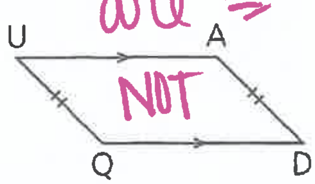
Def. of //ogram

UA // QD
↓
Conv. of Alt. Int. ∠s theorem

b



d



NOT

one pair of opp. sides is both // & ≅

EXAMPLES: PROVING PARALLELOGRAMS

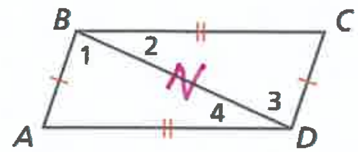
PROVE THIS PROPERTY:

- If both pairs of opposite sides of a quadrilateral are congruent, then the quadrilateral is a parallelogram.

2. Given: $\overline{AB} \cong \overline{CD}$

   $\overline{BC} \cong \overline{DA}$

   Prove: *ABCD* is a parallelogram



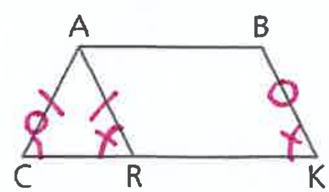
STATEMENTS	REASONS
1. $\overline{AB} \cong \overline{CD}$	1. & 2. Given
2. $\overline{BC} \cong \overline{DA}$	
3. $\overline{BD} \cong \overline{DB}$	3. Reflexive
4. $\triangle ABD \cong \triangle CDB$	4. SSS
5. $\angle 1 \cong \angle 3$ & $\angle 2 \cong \angle 4$	5. CPCTC
6. $\overline{AB} \parallel \overline{CD}$ & $\overline{BC} \parallel \overline{AD}$	6. Converse of Alt. Int. ∠s Theorem
7. ABCD is a ∥ogram	7. Def. of ∥ogram

3. Given: $\triangle CAR$ is isosceles w/base $\overline{CR}$

   $\overline{AC} \cong \overline{BK}$

   $\angle C \cong \angle K$

   Prove: *BARK* is a parallelogram

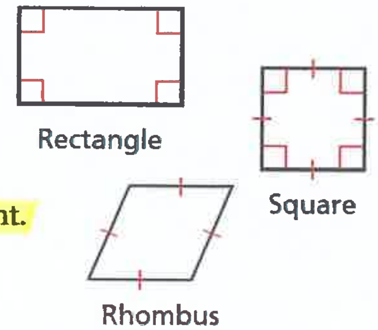


STATEMENTS	REASONS
1. $\triangle CAR$ is isosceles	1. Given
2. $\overline{AC} \cong \overline{AR}$	2. Def. of isosceles
3. $\angle C \cong \angle ARC$	3. If △ then △
4. $\angle C \cong \angle K$	4. Given
5. $\angle ARC \cong \angle K$	5. Transitive Prop.
6. $\overline{AR} \parallel \overline{BK}$	6. Converse of Corrs. ∠s Post.
7. $\overline{AC} \cong \overline{BK}$	7. Given
8. $\overline{AR} \cong \overline{BK}$	8. Transitive Prop.
9. BARK is a ∥ogram	9. one pair of opp. sides is BOTH // & ≅

6.4 – RECTANGLES, RHOMBI, & SQUARES

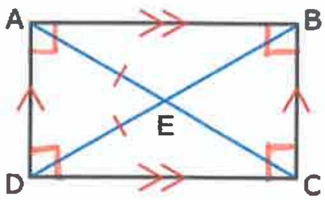
Objectives:

- Apply the properties of rectangles, rhombi, and squares to find side lengths, segment lengths, and angle measures
- Find areas of rectangles, rhombi, and squares



❖ Special Parallelograms
- ➢ Rectangle
  - ▪ A parallelogram in which at least one angle is a right angle.
- ➢ Rhombus
  - ▪ A parallelogram in which at least two consecutive sides are congruent.
- ➢ Square
  - ▪ A parallelogram that is BOTH a rectangle and a rhombus.

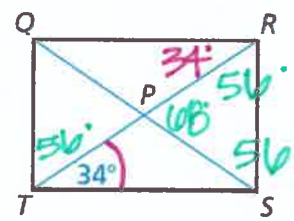
❖ Properties of Rectangles



$A = bh$

- ➢ **All properties of a parallelogram apply!**
- ➢ All angles are right angles
  - ▪ $\angle DAB, \angle ABC, \angle BCD, \angle CDA$ are right angles
- ➢ The diagonals are congruent
  - ▪ $\overline{AC} \cong \overline{BC}$

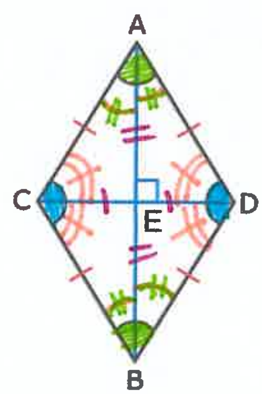
1. Given: $QRST$ is a rectangle, $m\angle PTS = 34°$, $QS = 10$ $m\angle RPS = 68°$



$m\angle QTR =$ 56° $m\angle QRT =$ 34° $m\angle SRT =$ 56°

$QP =$ 5 $RT =$ 10 $RP =$ 5

❖ Properties of Rhombuses

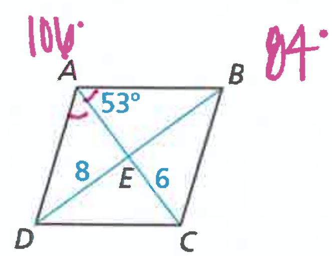


- ➢ **All properties of a parallelogram apply!**
- ➢ All sides are congruent—that is, a rhombus is equilateral
  - ▪ $\overline{AC} \cong \overline{BC} \cong \overline{AD} \cong \overline{BD}$
- ➢ The diagonals bisect the vertex angles
  - ▪ $\overline{AB}$ bisects $\angle CAD$ & $\angle CBD$
  - ▪ $\overline{CD}$ bisects $\angle ACB$ & $\angle ADB$

$$A = \frac{1}{2}d_1 d_2$$

- ➢ The diagonals are perpendicular bisectors of each other
  - ▪ $\overline{AB} \perp \overline{CD}$
  - ▪ $\overline{AB}$ & $\overline{CD}$ bisect each other
- ➢ The diagonals divide the rhombus into four congruent right triangles

2. Given: $ABCD$ is a rhombus, $m\angle BAC = 53°$, $DE = 8$, $EC = 6$



$m\angle DAC =$ 53° $m\angle AED =$ 90° $m\angle ADC =$ 84°

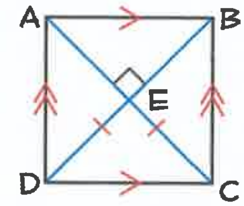
$DB =$ 16 $AE =$ 6   ~~AC~~ $=$ 12

CD = 10

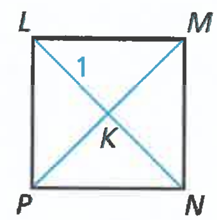
❖ Properties of Squares

- All properties of a parallelogram apply!
- All the properties of a rectangle apply!
- All the properties of a rhombus apply!
- The diagonals form four isosceles right triangles.

$A = s^2$



3. Given: *LMNP* is a square, *LK* = 1

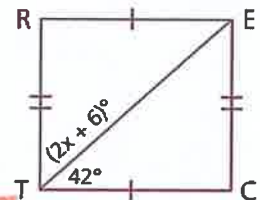


$m\angle MKN$ = 90° $m\angle LMK$ = 45° $m\angle LPK$ = 45°

KN = 1 *LN* = 2 *MP* = 2

EXAMPLES

4. In order for *RECT* to be a rectangle, what must the value of *x* be?



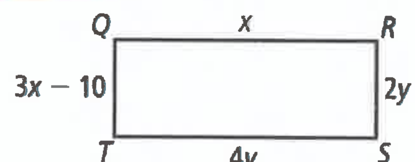
$2x + 48 = 90$

$2x = 42$

$x = 21$

∠RTC is a rt ∠

5. Given: Rectangle *QRST*
Set up and solve a system of equations to find the value of the variables.



opp. sides are ≅

$x = 4y$

$x = 4$

$3x - 10 = 2y$

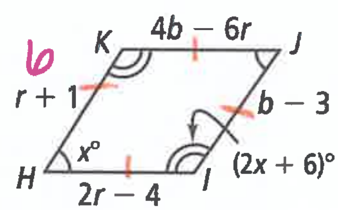
$3(4y) - 10 = 2y$

$12y - 10 = 2y$

$+10 = +10y$

$1 = y$

6. Given: Rhombus *HIJK*
   a. Find the value of the variables: *b*, *r*, & *x*.
   b. Find $m\angle J$ & $m\angle K$.



6

ALL sides are ≅

$m\angle J = 58°$

$m\angle K = 122°$

$2R - 4 = R + 1$

$R = 5$

$x + 2x + 6 = 180$

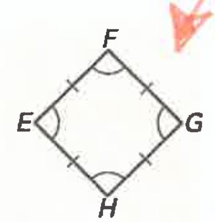
$3x = 174$

$x = 58$

$b - 3 = 6$

$b = 9$

7. Given: *EFGH* is a square with a perimeter of 36, *EH* = *x* + 6, $m\angle F = 2y - 4$
Find the values of *x* & *y*.



$\text{side} = \frac{36}{4} = 9$

$x + 6 = 9$

$x = 3$

$2y - 4 = 90$

$2y = 94$

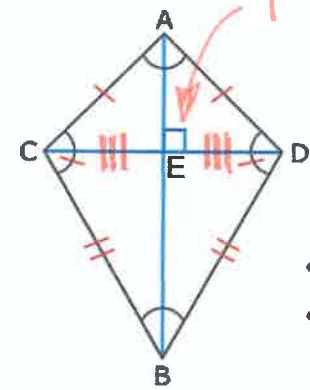
$y = 47$

6.5 – KITES & TRAPEZOIDS

Objectives:

- Apply the properties of kites and trapezoids to find side lengths, segment lengths, and angle measures
- Find areas of kites and trapezoids

Right ∠s



❖ Kites

- ➢ A quadrilateral with two pairs of consecutive congruent sides with opposite sides that are NOT congruent.

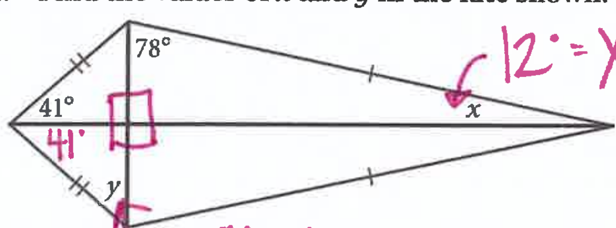
❖ Properties of Kites

- ➢ The diagonals are perpendicular to each other
  - $\overline{AB} \perp \overline{CD}$
- ➢ One diagonal is the perpendicular bisector of the other
  - $\overline{AB}$ bisects $\overline{CD}$ $\quad$ $\overline{CE} \cong \overline{DE}$
- ➢ One of the diagonals bisects a pair of opposite angles
  - $\overline{AB}$ bisects $\angle CAD$ & $\angle CBD$ → $\angle CAB \cong \angle DAB$ and $\angle CBA \cong \angle DBA$
- ➢ One pair of opposite angles are congruent
  - $\angle ACB \cong \angle ADB$

$$A = \frac{1}{2}d_1 d_2$$

EXAMPLES: USING THE PROPERTIES OF KITES

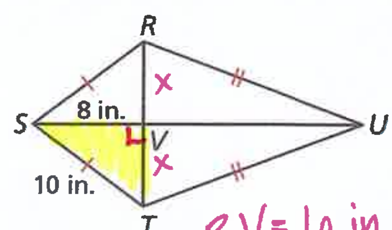
1. Find the values of x and y in the kite shown.



$12° = x$

$49° = y$

2. Find RV in the kite shown. * use Pythag theorem *



$RV = 6$ in.

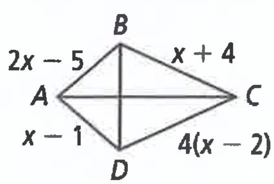
$x^2 + 8^2 = 10^2$

$x^2 + 64 = 100$

$x^2 = 36$

$x = 6$

3. Given: Kite $ABCD$
   Find the value of x.



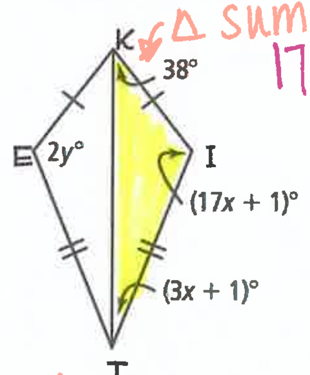
$\overline{AB} \cong \overline{AD}$

$2x - 5 = x - 1$

$x = 4$

4. Given: Kite $KITE$
   Find the values of x and y in the kite shown.

△ sum



$17x + 1 + 3x + 1 + 38 = 180°$

$20x + 40 = 180$

$20x = 140$

$x = 7$

* one pair of opp. ∠s are ≅

$\angle E \cong \angle I$

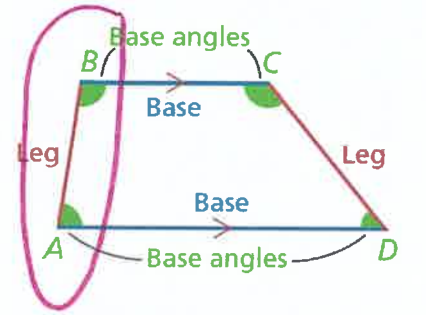
$2y = 17(7) + 1$

$2y = 119 + 1$

$2y = 120$

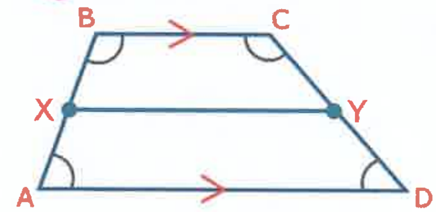
$y = 60$

- **Trapezoids**
  - A quadrilateral with exactly one pair of parallel sides.
    - $\overline{BC} \parallel \overline{AD}$
  - Properties of Trapezoids
    - Consecutive non-base angles are supplementary.
      - $\angle A$ is supplementary to $\angle B$
      - $\angle C$ is supplementary to $\angle D$

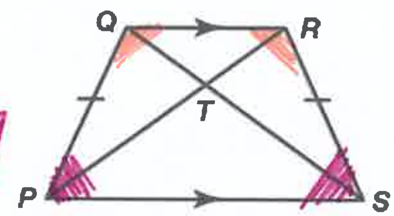


- **Midsegment of a Trapezoid**
  - Parallel to the bases
  - Length is half the sum of the lengths of the bases:

$$XY = \frac{1}{2}(AD + BC)$$



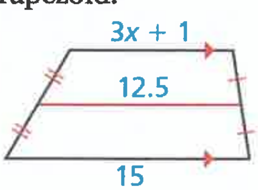
- **Isosceles Trapezoids**
  - A trapezoid with congruent non-parallel sides (legs)
    - $\overline{QP} \cong \overline{RS}$
  - Properties of Isosceles Trapezoids
    - All properties of a trapezoid apply
    - The base angles are congruent.
      - $\angle QPS \cong \angle RSP$
      - $\angle PQR \cong \angle SRQ$
    - The diagonals are congruent.
      - $\overline{QS} \cong \overline{RP}$



$$A = \frac{1}{2}h(b_1 + b_2)$$

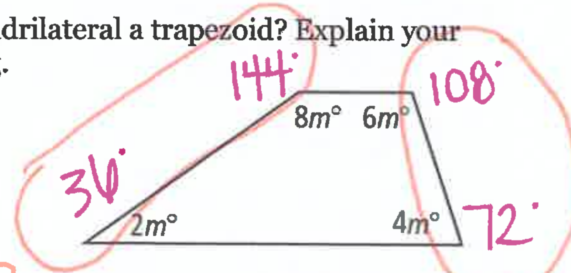
EXAMPLES: USING THE PROPERTIES OF TRAPEZOIDS

5. Find the value of x in the trapezoid.



$12.5 = \frac{1}{2}(3x+1+15)$
$2(12.5) = 2 \cdot \frac{1}{2}(3x+16)$
$25 = 3x+16$
$9 = 3x$
$3 = x$

6. Is the quadrilateral a trapezoid? Explain your reasoning.

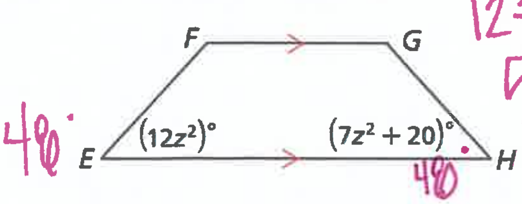


SUPP
SUPP

$20m = 360$
$m = 18$

yes b/c two opp. sides are ∥ to each other (converse of the Same-Side Int. ∠s thm)

7. Given: Isosceles trapezoid *EFGH*
   a. Find the value of z.
   b. Find $m\angle G$. $= 132°$



$\angle E \cong \angle H$
$12z^2 = 7z^2 + 20$
$5z^2 = 20$
$z^2 = 4$
$z^2 = \pm 2$

6.6.D1 – PROVING SPECIAL QUADRILATERALS IN THE COORDINATE PLANE

Objective:

- Use the distance, slope, and midpoint formulas to prove that a figure graphed in the coordinate plane is special quadrilateral: rectangle, rhombus, square, kite, or trapezoid

* ALSO REFER TO YOUR GOLD CARD *

	Distance Formula	Midpoint Formula	Slope Formula
Formula	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$	$m = \frac{y_2 - y_1}{x_2 - x_1}$
When to Use It	To determine whether • sides are congruent • diagonals are congruent	To determine • the coordinates of the midpoint of a side • whether diagonals bisect each other	To determine whether • opposite sides are parallel • diagonals are perpendicular • sides are perpendicular

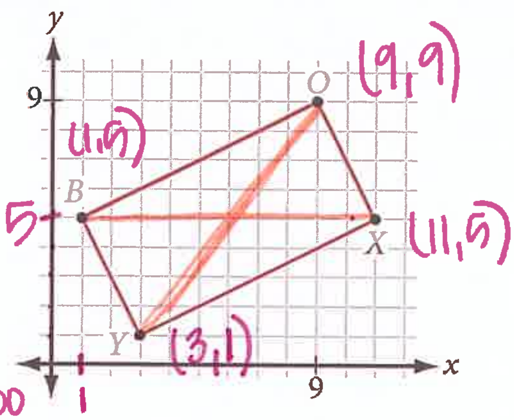
same slope

Slopes are opp. Recips

EXAMPLES: QUADRILATERALS IN THE COORDINATE PLANE

1. Show that *BOXY* is a rectangle.

(Remember, you must first show that *KARI* is a parallelogram.)



midpoint

$BX = \left(\frac{11+1}{2}, \frac{5+5}{2}\right) = (6,5)$

$OY = \left(\frac{3+9}{2}, \frac{1+9}{2}\right) = (6,5)$

//ogram b/c the diagnols bisect

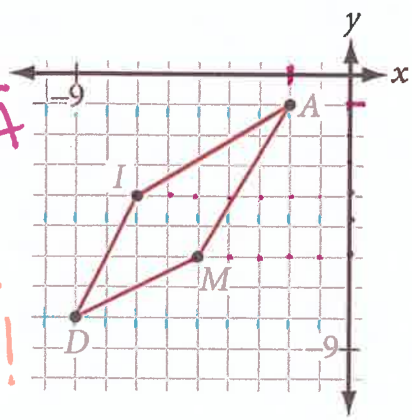
$BX = 10$

$OY = \sqrt{6^2 + 8^2} = \sqrt{100} = 10$

diagnols are ≅ too ∴ Rectangle

Use the diagonals to determine whether a parallelogram with the given vertices is a rectangle, rhombus, or square. Give all the names that apply.

2. $A(-2,-1), I(7,-4), D(-9,-8), M(-5,6)$



$m_{IM} = \frac{-4+6}{-7+5} = \frac{2}{-2} = -1$

$m_{DA} = \frac{-1+8}{-2+9} = \frac{7}{7} = 1$

$\overline{IM} \perp \overline{DA}$

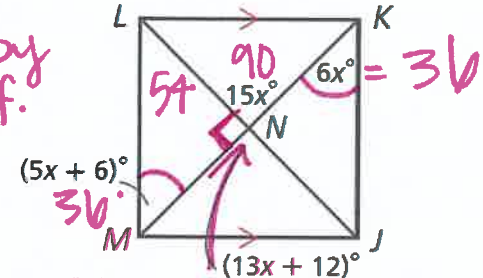
slopes are opp. Recips!

6.6.D2 – Proves with Special Quadrilaterals

Objective:

- Prove that a quadrilateral is a special quadrilateral: rectangle, rhombus, square, kite, or trapezoid

1. Write and solve an equation to find the value of x.
   a. Is $JKLM$ a parallelogram? Explain. yes by def.
   b. Is $JKLM$ a rectangle? Explain.
   c. Is $JKLM$ a rhombus? Explain. — diagonals are ⊥

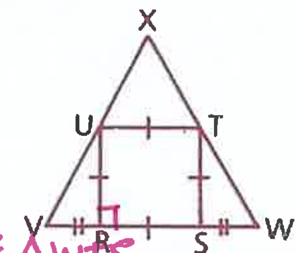


$\angle LNK \cong \angle MNJ$
$15x = 13x + 12$
$2x = 12$
$x = 6$

yes $m\angle LMJ = 90°$ therefore JKLM is a parallelogram w/ a rt ∠

$\overline{LK} \parallel \overline{MJ}$ (given)
$\overline{LM} \parallel \overline{KJ}$ b/c $\angle LMK \cong \angle JKM$ conv. of Alt. Int. ∠s theorem

2. Given: $RSTU$ is a square; $\overline{VR} \cong \overline{SW}$
   a. Is $VWTU$ an isosceles trapezoid? yes
   b. Is $\triangle VWX$ an isosceles triangle? yes
   c. Is $\triangle UTX$ an isosceles triangle?
   yes



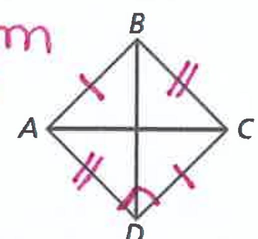
$\overline{VU} \cong \overline{TW}$ can be proven b/c $\triangle VUR \cong \triangle WTS$
(this too)
$\angle V \cong \angle W$
therefore $\overline{XV} \cong \overline{XW}$

$\overline{UT} \parallel \overline{RS}$ b/c a square is a ∥ogram

3. Determine if the conclusion is valid and explain your reasoning. If the conclusion is NOT valid, tell what additional information is needed to make it valid.

Given: $\overline{AB} \cong \overline{CD}$, $\overline{BC} \cong \overline{AD}$ } ABCD is a ∥ogram b/c both pairs of opp. sides are ≅
$\overline{AD} \perp \overline{DC}$
$\overline{AC} \perp \overline{BD}$

Conclusion: $ABCD$ is a square



ABCD is a rectangle b/c it is a ∥ogram w/@ least one rt ∠.

diagonals are ⊥, therefore ABCD is a rhombus

the conclusion IS valid b/c ABCD is both a rectangle & a rhombus

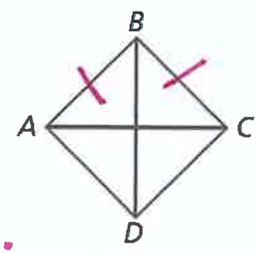
4. Determine if the conclusion is valid and explain your reasoning. If the conclusion is NOT valid, tell what additional information is needed to make it valid.

Given: $\overline{AB} \cong \overline{BC}$

Conclusion: *ABCD* is a rhombus

NOT VALID

I need to know that ABCD is a ∥ogram for the given congruence to be sufficient.



5. In rhombus MATH, the coordinates of the endpoints of the diagonal $\overline{MT}$ are $M(0,-1)$ and $T(4,7)$. Write an equation of the line that contains diagonal $\overline{AH}$. Using the given information, explain how you know that your line contains diagonal $\overline{AH}$.

midpt of $\overline{MT}$ $= \left(\frac{0+4}{2}, \frac{-1+7}{2}\right) = (2,3)$

The diagnoals of a Rhombus are ⊥ bisectors of each other

⊥

$m = \frac{-1-7}{0-4} = \frac{-8}{-4} = 2$

$\therefore m_{AH} = -\frac{1}{2}$

$y = mx + b$

$3 = -\frac{1}{2}(2) + b$

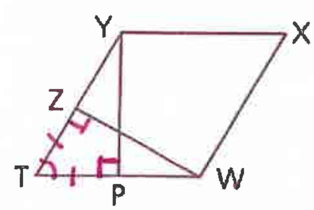
$3 = -1 + b$

$4 = b$

$y = -\frac{1}{2}x + 4$

6. Given: *YTWX* is a parallelogram
$\overline{YP} \perp \overline{TW}$
$\overline{ZW} \perp \overline{TY}$
$\overline{TP} \cong \overline{TZ}$

Prove: *TWXY* is a rhombus



STATEMENTS	REASONS
1. *YTWX* is a parallelogram	Given
2. $\overline{YP} \perp \overline{TW}$	Given
3. ∠TPY is a Rt ∠	Def. of ⊥
4. $\overline{ZW} \perp \overline{TY}$	Given
5. ∠TZW is a Rt ∠	Def. of ⊥
A 6. ∠TPY ≅ ∠TZW	Right ∠s are ≅
S 7. $\overline{TP} \cong \overline{TZ}$	Given
A 8. ∠T ≅ ∠T	Reflexive
9. $\triangle TYP \cong \triangle TWZ$	ASA
10. $\overline{TY} \cong \overline{TW}$	CPCTC
11. *TWXY* is a rhombus	Definition of rhombus - *A parallelogram with at least one pair of consecutive sides congruent*