Fill in the blank with the correct word.

The opposite <u>sides</u> of a parallelogram are _parallel_ .

The opposite <u>angles</u> of a parallelogram are _congruent_ .

The consecutive <u>angles</u> of a parallelogram are _supplementary_

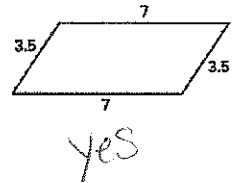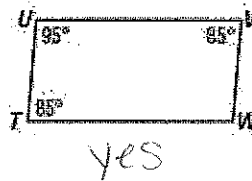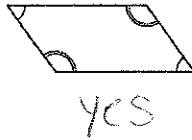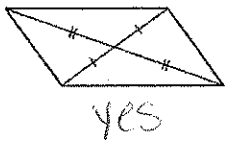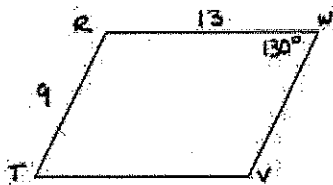The diagonals of a **parallelogram** _bisect_ each other.

Look at the markings on the picture to determine if the quadrilateral is a parallelogram, and if so, why.

yes   yes   yes   yes

yes   no   yes   no
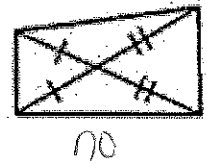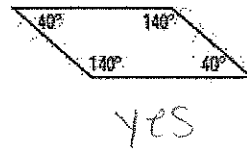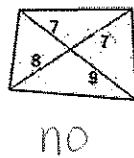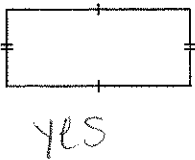
Find the measure of each angle or length of each segment.

RTVW is a **PARALLELOGRAM**	*MKGF* is a **PARALLELOGRAM**	*AESN* is a **PARALLELOGRAM**
WV=_9_ VT=_13_		
m∠R=_50_	m∠1=_80_ m∠KFG=_40_	m∠1=_35_ m∠ANS=_77_
m∠T=_130_	m∠MFG=_120_ m∠M=_60_	m∠NAE=_103_ m∠2=_58_
m∠V=_50_	m∠G=_60_	m∠3=_45_ m∠ETS=_80_
	MK=_11_ KG=_7_	AT =_12_ AS=_24_
		NT=_15_ NE =_30_
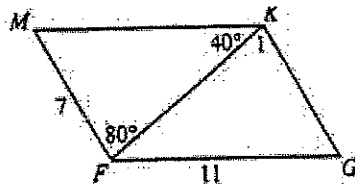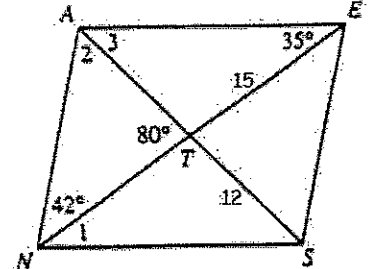
JKLM is a parallelogram. Find JK and KL.　　　　**WXYZ is a parallelogram. Find the missing angle measures.**
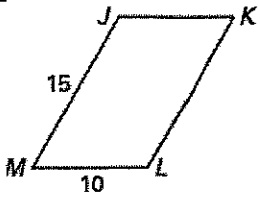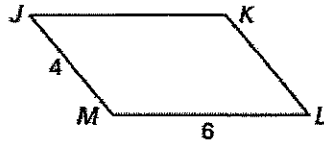
22　　　　　　　23.　　　　　　　24.　　　　　　　25.

JK = __10__ KL = __15__　　　JK = __6__ KL = __4__　　　$m\angle X =$ __105__ $m\angle W =$ __75__　　　$m\angle Z =$ __50__ $m\angle W =$ __130__
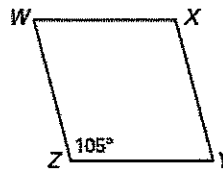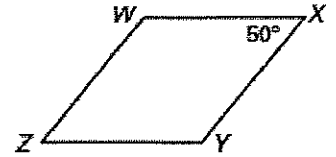
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　$m\angle Y =$ __75__　　　　　　　　$m\angle Y =$ __130__

Use the properties of parallelograms to write and solve an algebraic <u>equation</u> for each picture. Solve for x.

33.　　　　　　　34.　　　　　　　35.

$(5x - 10)$　　$x = 6$　　　$(4x - 20)°$　　$x = 30$　　　$(5x + 75)°$　　$x = 10$

20　　　　　　　100°　　　　　　$(3x + 25)°$
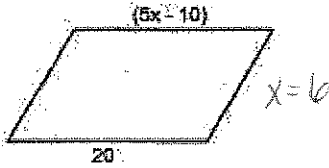
Parallelogram Rule:　　　　Parallelogram Rule:　　　　Parallelogram Rule:

Relationship: *Congruent or Supplementary*　　　Relationship: *Congruent or Supplementary*　　　Relationship: *Congruent or Supplementary*

Equation:　　　　　　Equation:　　　　　　Equation:

x = __6__　　　　　　x = __30__　　　　　　x = __10__

If $AE = 17$ and $BF = 18$, find the measures of the sides of parallelogram $BNXL$.

54, 34

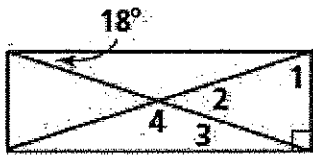| Find the values of the variables and the length of the sides.	Find the values of the variables and the length of the sides.	Give the most precise name for the quadrilaterals.
rhombus $ABDC$ A $2x - 3$ B $18 - x$ $3x - 10$ C $x + 4$ D $x = 7$ Sides = 11	Rectangle ~~square~~ $FGHI$ F $3f + 2$ G $g + 6$ $2g$ I $5f - 8$ H $f = 5$ Sides = 12, 17 $g = 6$	Kite Trapezoid
Find the value of the variable for the parallelogram $IK = 35$ $4x + 3$ I — J L — K $x = 3.625$	Find the values of x and y that make the figure a parallelogram. M $5x - 4$ I $2y$ $2x + 14$ A P $x = 6$ $y = 3$	Find the value of x. Then determine whether or not the figure is a parallelogram. Explain. $(4x - 10)^\circ$ 50° $(x + 15)^\circ$ $(2x)^\circ$ $x = 25$

For the parallelogram, give the most precise name and find the measure of the numbered angles	HIJK is a rectangle. Find the value of the variable with the given diagonals.	Find the measure of the numbered angles for the rhombus
18° 2 1 4 3 m∠1 = 72 m∠3 = 18 m∠2 = 36 m∠4 = 144	$HJ = 3x + 7$ and $IK = 6x - 11$ $x = 6$ Diagonals = 25	16 cm 1/2 29° 3 9 cm 4 m∠1 = 90 m∠3 = 29 m∠2 = 90 m∠4 = 29
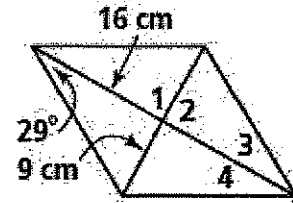
Determine whether the quadrilateral can be a parallelogram *One pair of opposite sides is parallel, and the other pair is congruent.* Not a parallelogram	Determine whether the quadrilateral can be a parallelogram *Opposite angles are congruent and supplementary, but the quadrilateral is not a rectangle.* Parallelogram