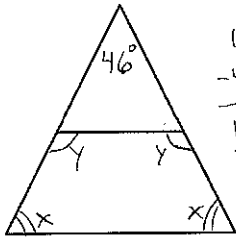


Integrated Math 2

Chapter 5 Review

1. The isosceles trapezoid is part of an isosceles triangle with a  $46^\circ$  vertex angle. What is the measure of an acute base angle of the trapezoid? Of an obtuse base angle? The diagram is not to scale.



base  $\angle s \cong$   
 $180 = 46 + x + x$   
 $-46 \quad -46$   
 $\hline 134 = 2x$   
 $\frac{2}{2} \quad \frac{2}{2}$   
 $67 = x$

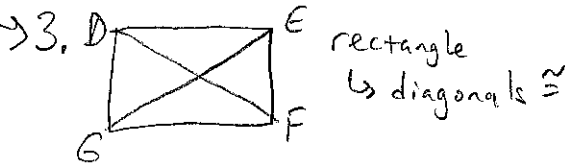
Consecutive base  $\angle s$  supp  
 $y = 180 - 67 = 113$

Acute =  $67^\circ$   
 Obtuse =  $113^\circ$

2. What is the sum of the angle measures of a 37-gon?  $(n-2)180$   
 $(37-2)180 = 6300^\circ$
3.  $DEFG$  is a rectangle.  $DF = 6x - 1$  and  $EG = x + 39$ . Find the value of  $x$  and the length of each diagonal.  $x = 8, DF = EG = 47$

4. How many sides does an equiangular regular polygon have if each exterior angle measures  $72^\circ$ ?

Sum =  $360^\circ$   
 $360 \div n = 72$   
 $360 \div 72 = n$   
 $5 = n$



$6x - 1 = x + 39$   
 $+1 \quad +1$

$6x = x + 40$

$-x \quad -x$

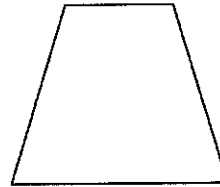
$\frac{5x}{5} = \frac{40}{5}$

$x = 8$

$DF = EG = 8 + 39 = 47$

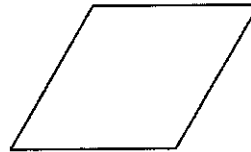
5. Judging by appearances, which figure is a trapezoid?

A.

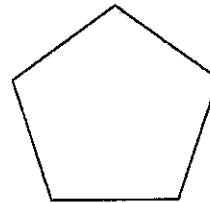


1 pair opp sides  $\parallel$

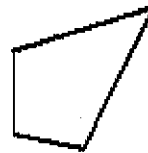
B.



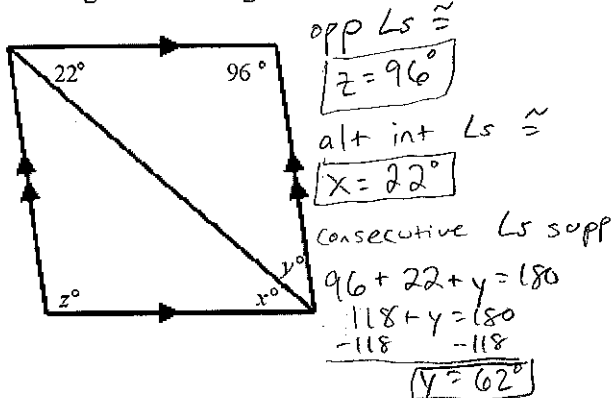
C.



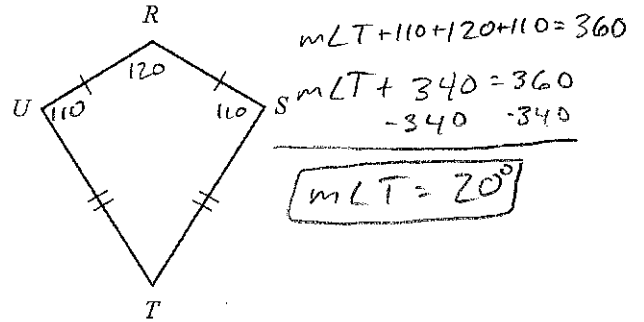
D.



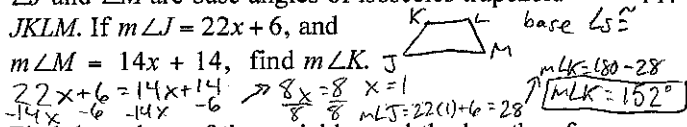
6. Find the values of the variables in the parallelogram. The diagram is not to scale.



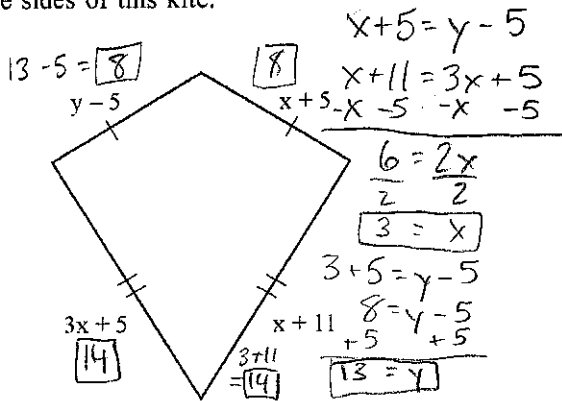
10.  $m\angle R = 120$  and  $m\angle S = 110$ . Find  $m\angle T$ . The diagram is not to scale.



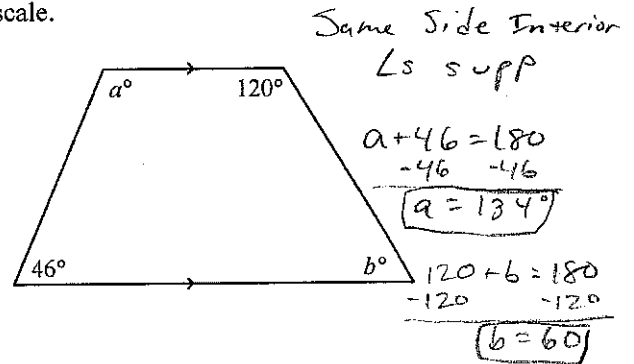
7.  $\angle J$  and  $\angle M$  are base angles of isosceles trapezoid JKLM. If  $m\angle J = 22x + 6$ , and  $m\angle M = 14x + 14$ , find  $m\angle K$ .



8. Find the values of the variables and the lengths of the sides of this kite.



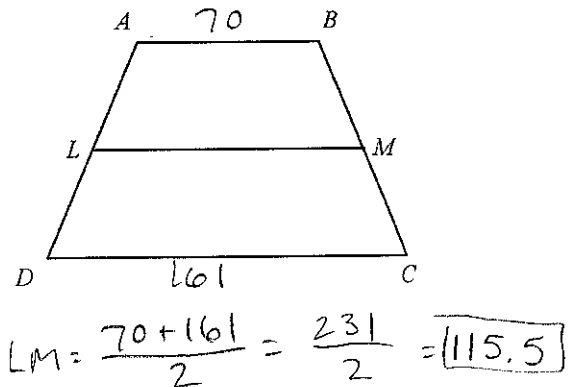
11. Find the values of  $a$  and  $b$ . The diagram is not to scale.



9. What is the measure of one angle in a regular 16-gon?

$$\frac{(16-2)180}{16} = 157.5^\circ$$

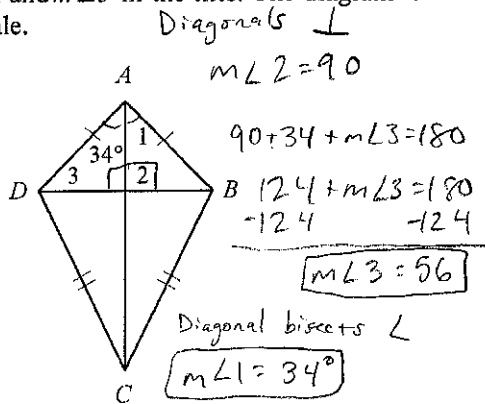
12.  $\overline{LM}$  is the midsegment of  $\square ABCD$ .  $AB = 70$  and  $DC = 161$ . What is  $LM$ ?



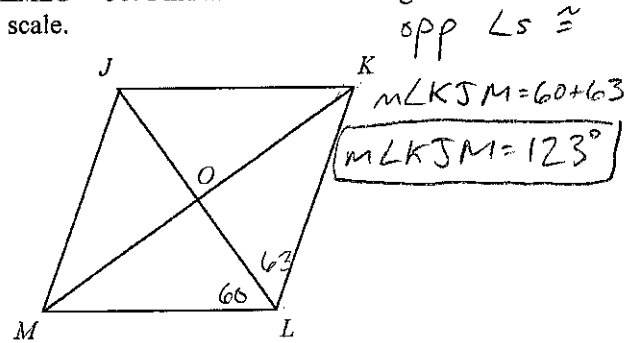
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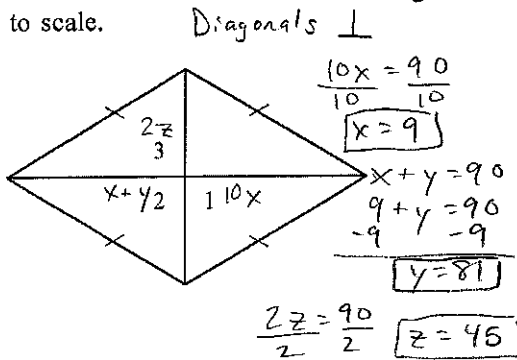
13. Find  $m\angle 1$  and  $m\angle 3$  in the kite. The diagram is not to scale.



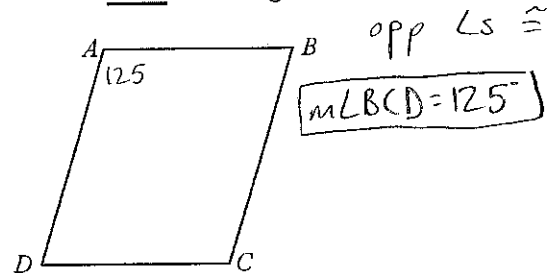
15. In the parallelogram,  $m\angle KLO = 63$  and  $m\angle MLO = 60$ . Find  $m\angle KJM$ . The diagram is not to scale.



14. In the rhombus,  $m\angle 1 = 10x$ ,  $m\angle 2 = x + y$ , and  $m\angle 3 = 2z$ . Find the value of each variable. The diagram is not to scale.

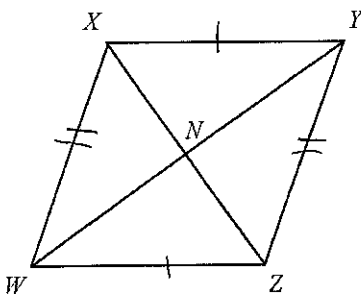


16.  $ABCD$  is a parallelogram. If  $m\angle DAB = 125$ , then  $m\angle BCD = ?$ . The diagram is not to scale.



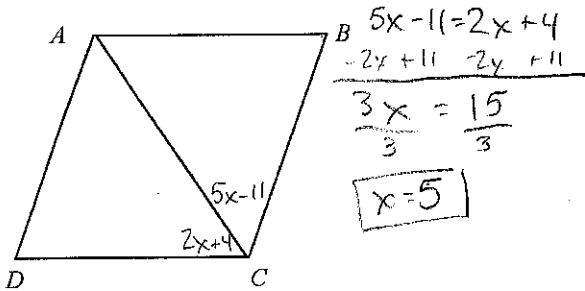
17. Based on the information given, can you determine that the quadrilateral must be a parallelogram? Explain.

Given:  $\overline{XY} \cong \overline{WZ}$  and  $\overline{XW} \cong \overline{YZ}$



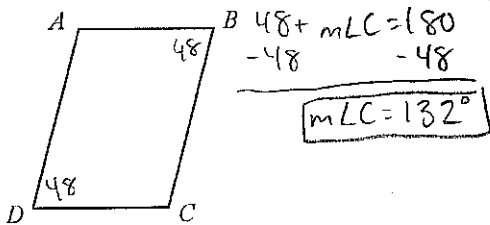
Yes, if both pairs of opp sides  $\cong$ , then the quadrilateral is a  $\parallel$ -gram.

18. In quadrilateral  $ABCD$ ,  $m\angle ACD = 2x + 4$  and  $m\angle ACB = 5x - 11$ . For what value of  $x$  is  $ABCD$  a rhombus? *Diagonal bisects  $\angle$*

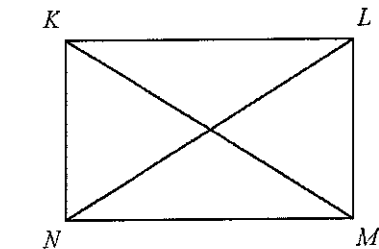


19. The sum of the measures of two exterior angles of a triangle is 252. What is the measure of the third exterior angle? *Sum = 360*  
 $252 + x = 360$   $x = \boxed{108^\circ}$

20. If  $m\angle B = m\angle D = 48$ , find  $m\angle C$  so that quadrilateral  $ABCD$  is a parallelogram. The diagram is not to scale. *consecutive  $\angle$ s supp*



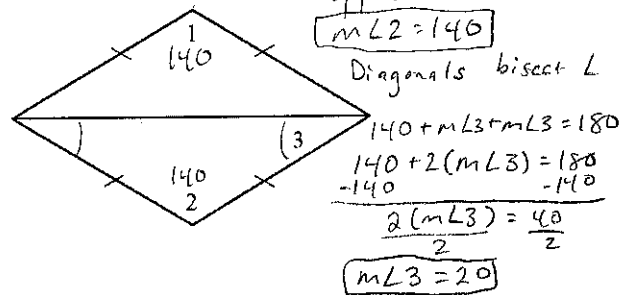
21. In rectangle  $KLMN$ ,  $KM = 10x + 29$  and  $LN = 64$ . Find the value of  $x$ .



*Diagonals  $\cong$*

$$\begin{array}{r} 10x + 29 = 64 \\ -29 \quad -29 \\ \hline 10x = 35 \\ \frac{10x}{10} = \frac{35}{10} \\ \boxed{x = 3.5} \end{array}$$

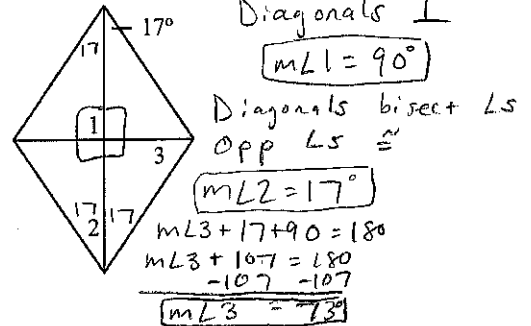
22. In the rhombus,  $m\angle 1 = 140$ . What are  $m\angle 2$  and  $m\angle 3$ ? The diagram is not to scale. *opp  $\angle$ s  $\cong$*



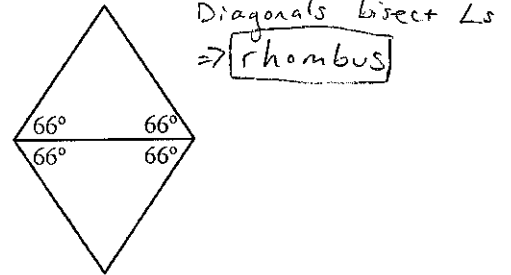
23. Isosceles trapezoid  $ABCD$  has legs  $AB$  and  $CD$ , and base  $BC$ . If  $AB = 4y - 6$ ,  $BC = 2y - 3$ , and  $CD = 5y - 16$ , find the value of  $y$ . *Legs  $\cong$*

$$4y - 6 = 5y - 16 \Rightarrow \boxed{10 = y}$$

24. Find the measure of the numbered angles in the rhombus. The diagram is not to scale. *Diagonals  $\perp$*



25. Parallelogram  $ABCD$  has the angle measures shown. Can you conclude that it is a rhombus, a rectangle, or a square? Explain. *Diagonals bisect  $\angle$ s*

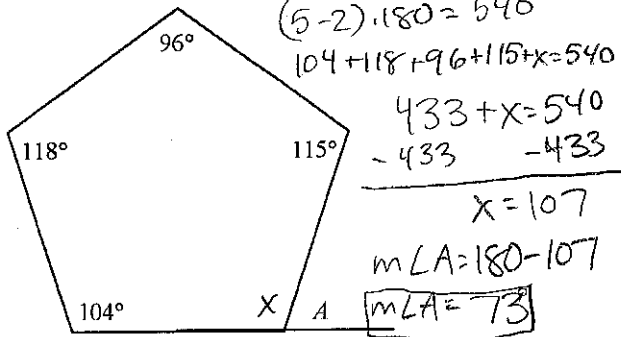


26. The sum of the angle measures of a polygon with  $s$  sides is 3240. Find  $s$ .  $(s - 2)180 = 3240$

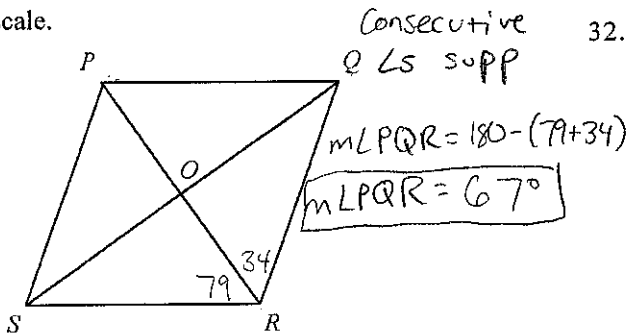
27. A road sign is in the shape of a regular decagon. What is the measure of each angle on the sign? Round to the nearest tenth.  $\frac{180s = 3600}{s = 20}$

$$\frac{(10 - 2)180}{10} = \frac{1440}{10} = \boxed{144^\circ}$$

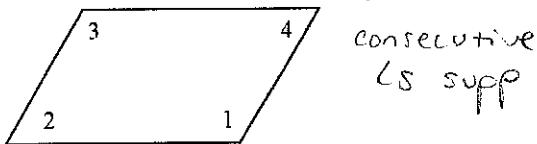
28. Find  $m\angle A$ . The diagram is not to scale.



29. In the parallelogram,  $m\angle QRP = 34$  and  $m\angle PRS = 79$ . Find  $m\angle PQR$ . The diagram is not to scale.



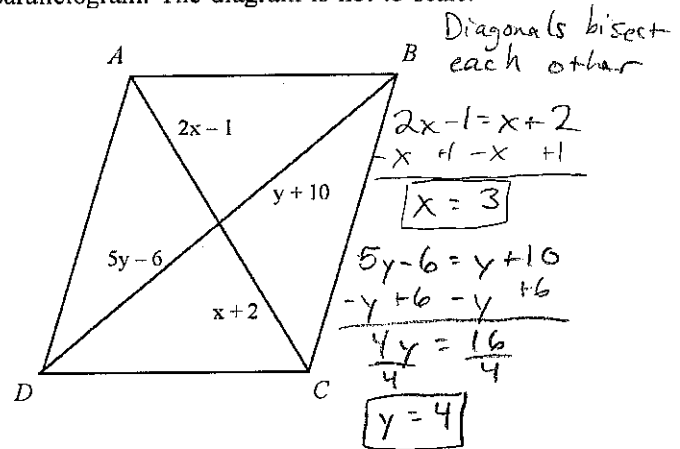
30. For the parallelogram, if  $m\angle 2 = 4x - 28$  and  $m\angle 4 = 3x - 12$ , find  $m\angle 3$ . The diagram is not to scale.



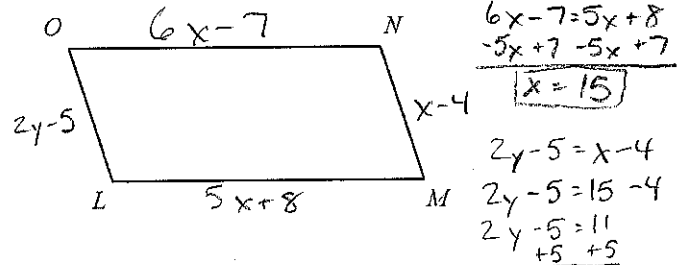
$4x - 28 = 3x - 12$   
 $-3x + 28 \quad -3x + 28$   
 $x = 16$

$m\angle 2 = 4(16) - 28 = 36^\circ$   
 $m\angle 3 = 180 - 36 = 144^\circ$

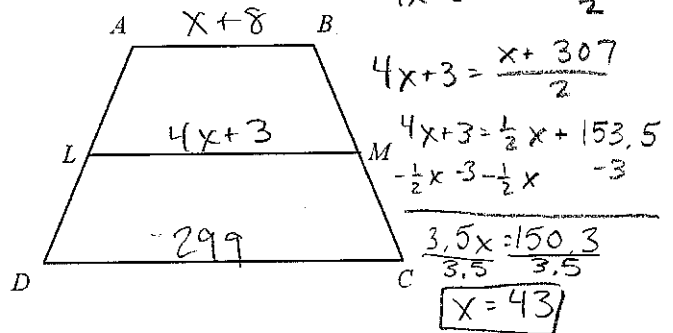
31. Find values of  $x$  and  $y$  for which  $ABCD$  must be a parallelogram. The diagram is not to scale.



32. If  $ON = 6x - 7$ ,  $LM = 5x + 8$ ,  $NM = x - 4$ , and  $OL = 2y - 5$ , find the values of  $x$  and  $y$  for which  $LMNO$  must be a parallelogram. The diagram is not to scale.



33.  $\overline{LM}$  is the midsegment of  $\square ABCD$ .  $AB = x + 8$ ,  $LM = 4x + 3$ , and  $DC = 299$ . What is the value of  $x$ ?



34. What type of quadrilateral has all sides and angles congruent?  
rhombus + rectangle

Square