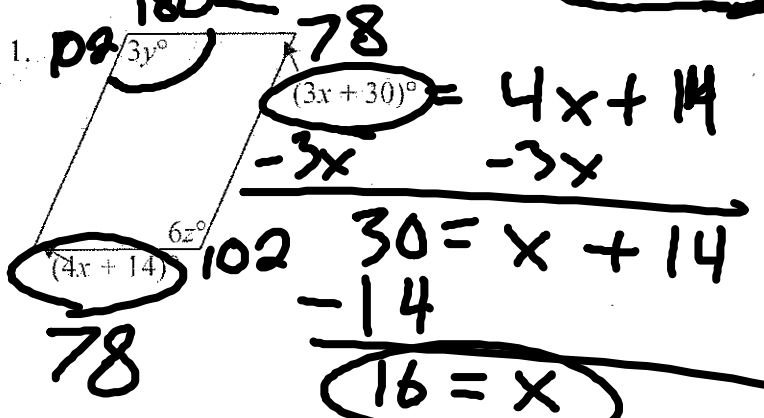


Find the value of each variable in the given parallelogram.

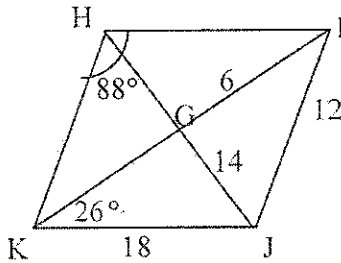


$x = 16$

$y =$ _____

$z =$ _____

Find each measure in the parallelogram $HJKI$.



2. $HI = 18$

4. $KG = 6$

6. $m\angle KIH = 26$

8. $m\angle KJI = 88$

3. $HJ = 28$

5. $m\angle HKJ = 52$

7. $m\angle JIH = 52$

9. $m\angle JIK = 26$

$ABCD$ is a rectangle with $BC = 63$ and $AB = 84$. Find each measure.

10. $m\angle BCD = 90$

12. $m\angle CAD = 72$

14. $m\angle 1 = 72$

16. $m\angle 3 = 36$

18. $AD = 63$

20. $BE = 52.5$

11. $m\angle CED = 144$

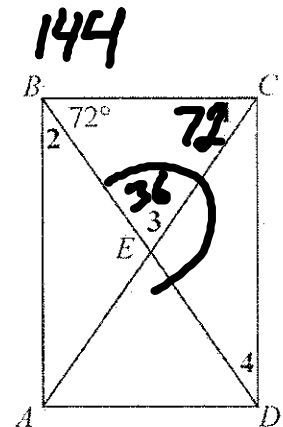
13. $m\angle AED = 36$

15. $m\angle 2 = 18$

17. $m\angle 4 = 18$

19. $AC = 105$

21. $DB = 105$

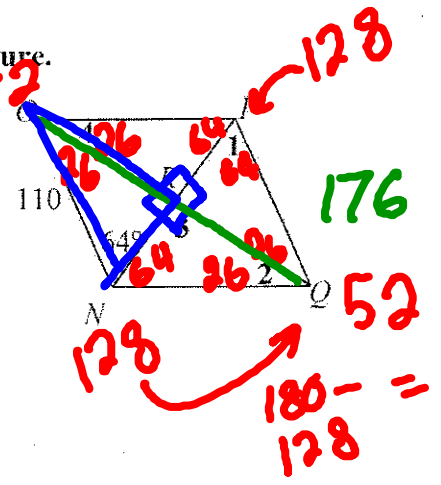


$180 - 36 = 144$
 (44)

$NOPQ$ is a rhombus. Given $ON = 110$ and $OQ = 176$. Find each measure.

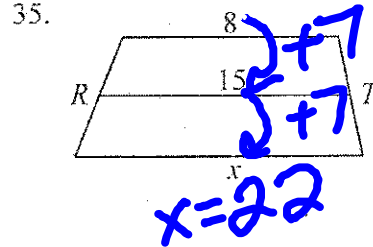
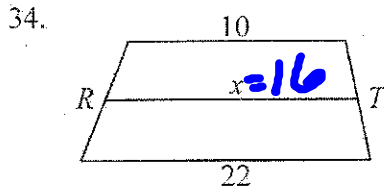
- 22. $m\angle OPN = 64$
- 24. $m\angle NQP = 52$
- 26. $m\angle 1 = 64$
- 28. $m\angle 3 = 90$
- 30. $OP = 110$
- 32. $NP = 132$

- 23. $m\angle NOQ = 26$
- 25. $m\angle OPQ = 128$
- 27. $m\angle 2 = 26$
- 29. $m\angle 4 = 26$
- 31. $OR = 88$
- 33. $NR = 66$



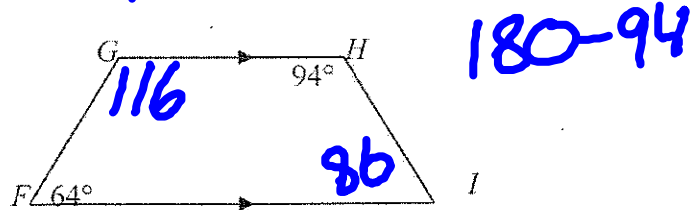
$$x^2 + 88^2 = 110^2$$

The midsegment of the trapezoid is \overline{RT} . Set up an equation and solve for x .



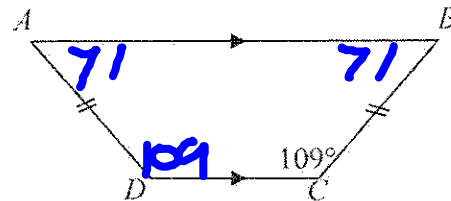
Find each measure of $FGHI$.

- 36. $m\angle G = 116$
- 37. $m\angle I = 86$



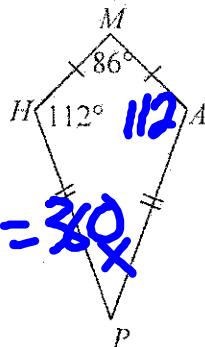
Find the missing angle measure of $ABCD$.

- 38. $m\angle A = 71$
- 39. $m\angle B = 71$
- 40. $m\angle D = 109$

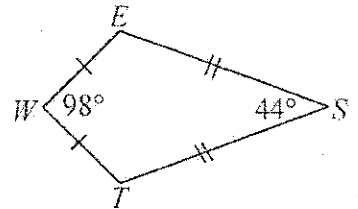


Find the measure of the missing angles.

- 41. $m\angle A = 112$
- 43. $m\angle P = 50$

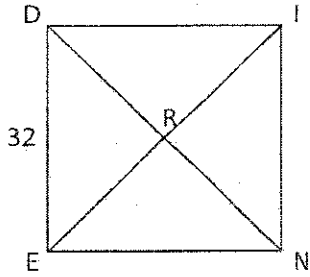


- 42. $m\angle E = 109$
- 44. $m\angle T = 109$



$$86 + 112 + 112 + x = 360$$

45. Given WILS is a square. Find the indicated measures.



$m\angle DEN =$ _____

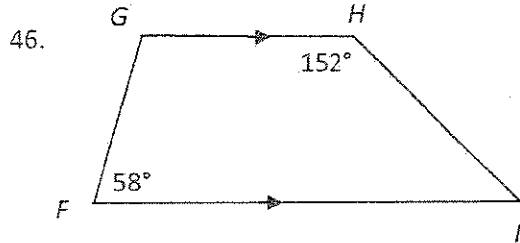
$m\angle IRN =$ _____

$m\angle DRI =$ _____

$m\angle NDE =$ _____

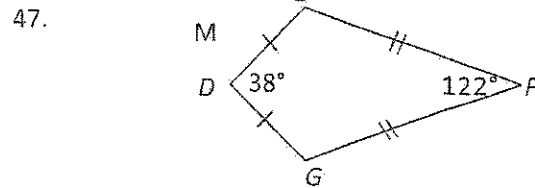
$EN =$ _____

Find each missing angle measure.



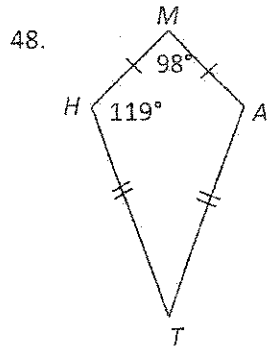
$m\angle G =$ _____

$m\angle I =$ _____



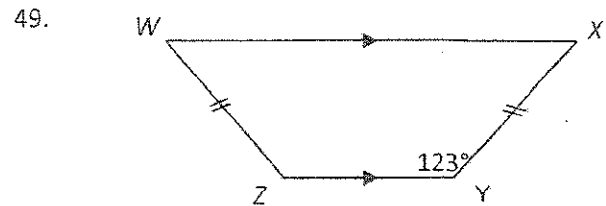
$m\angle E =$ _____

$m\angle G =$ _____



$m\angle A =$ _____

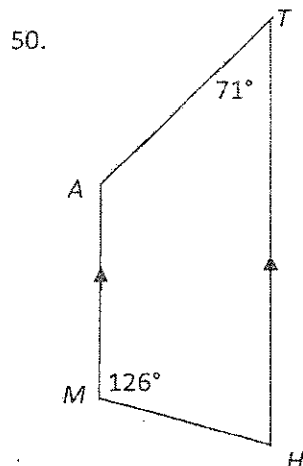
$m\angle T =$ _____



$m\angle W =$ _____

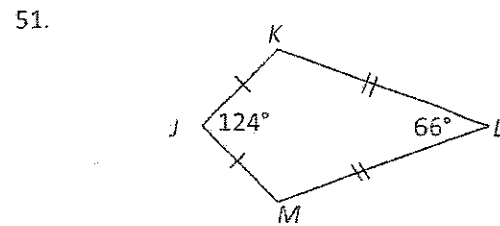
$m\angle X =$ _____

$m\angle Z =$ _____



$m\angle A =$ _____

$m\angle H =$ _____



$m\angle K =$ _____

$m\angle M =$ _____

Find the sum of the measures of the interior angles of the convex polygon

1) 10-gon

2) 12-gon

3) 15-gon

4) 18-gon

5) 20-gon

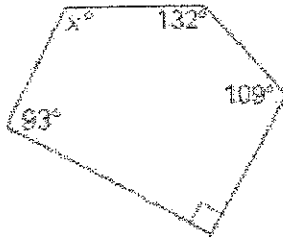
6) 30-gon

7) 40-gon

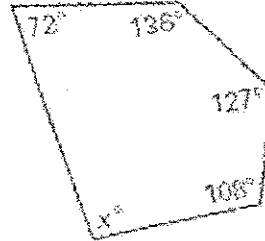
8) 100-gon

Find the value of x

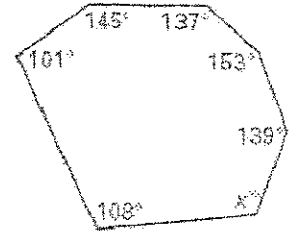
9)



10)



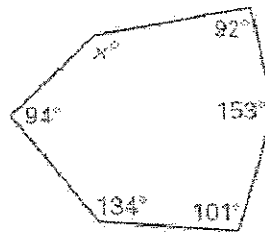
11)



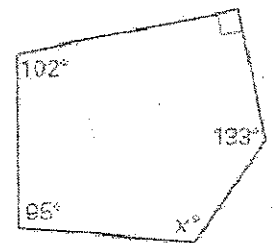
12)



13)



14)



- 15) A convex quadrilateral has interior angles that measure 80° , 110° , and 80° . What is the measure of the fourth interior angle?
- 16) A convex pentagon has interior angles that measure 60° , 80° , 120° , and 140° . What is the measure of the fifth interior angle?

Find the sum of the exterior angles of the following

17. dodecagon

$$360$$

18. Decagon

$$360$$

19. Heptagon

$$360$$

You are given the measure of one exterior angle of a regular convex polygon. Find the value of n (n is the number of sides).

20. 20°

$$20x = 360 \quad \frac{360}{20} = 18$$

21. 12°

$$\frac{360}{12} = 30$$

22. 30°

$$\frac{360}{30} = 12$$

You are given the measure of each interior angle of a regular convex polygon. Find the value of n (n is the number of sides).

23. 144°

$$180 - 144 = 36$$
$$\frac{360}{36} = 10$$

24. 120°

$$180 - 120 = 60$$
$$\frac{360}{60} = 6$$

25. 140°

$$180 - 140 = 40$$
$$\frac{360}{40} = 9$$

26. 108°

$$180 - 108 = 72$$
$$\frac{360}{72} = 5$$

27. 156°

$$180 - 156 = 24$$
$$\frac{360}{24} = 15$$

Find the measure of one interior and one exterior angle of a regular convex polygon

22. hexagon

$$\text{Ext} \rightarrow \frac{360}{6} = 60 \quad \text{Int} \rightarrow 180 - 60 = 120$$

23. nonagon

$$\text{Ext} \rightarrow \frac{360}{9} = 40 \quad \text{Int} \rightarrow 180 - 40 = 140$$

24. quadrilateral

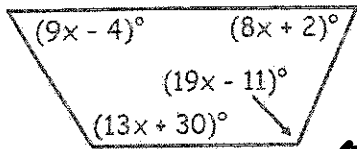
$$\text{Ext} \rightarrow \frac{360}{4} = 90 \quad \text{Int} \rightarrow 180 - 90 = 90$$

25. octagon

$$\text{Ext} \rightarrow \frac{360}{8} = 45 \quad \text{Int} \rightarrow 180 - 45 = 135$$

Find the value of x.

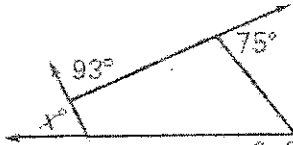
26. $9x - 4 + 8x + 2 + 13x + 30 + 19x - 11$



$$49x + 17 = 360$$

$$x = 7$$

27.



$$75 + 93 + 3x = 360$$

$$x = 64$$

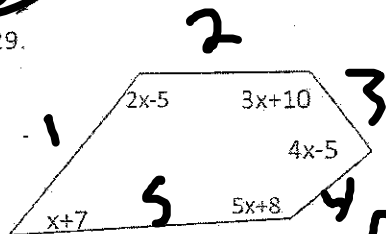
28.

$$7x + 150 = 360$$

$$7x = 210$$

$$x = 30$$

29.



$$15x + 15 = 540$$

$$15x = 525$$

$$x = 35$$

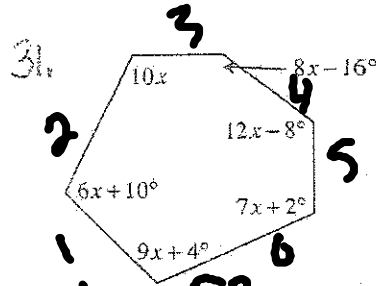
30. The exterior angles of a heptagon are 73° , 103° , 47° , 14° , 23° , 52° and x. Find x.

$$x + 312 = 360$$

$$x = 48$$

$$\begin{array}{r} 176 \\ 61 \\ 75 \\ \hline 237 \end{array}$$

$$(6-2) \cdot 180$$



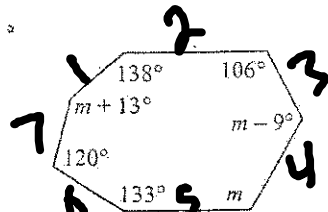
$$\text{Sum to } 52x - 8 = 720$$

$$52x = 728$$

$$x = 14$$

$$(7-2) \cdot 180$$

32.



$$\text{Sum to } 3m + 501 = 900$$

$$3m = 399$$

$$m = 133$$