

Review 6.1-6.3

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

1. decagon  
 $(10-2)180$   
 $= 1440^\circ$

2. octagon  
 $(8-2)180$   
 $= 1080^\circ$

3. 35-gon  
 $(35-2)180$   
 $= 5940^\circ$

The measure of an interior angle of a regular polygon is given. Find the number of sides in the polygon.

4. 150  
 $150n = (n-2)180$   
 $150n = 180n - 360$   
 $-30n = -360$   
 $n = 12$

5. 175  
 $175n = (n-2)180$   
 $175n = 180n - 360$   
 $-5n = -360$   
 $n = 72$

6. 144  
 $144n = (n-2)180$   
 $144n = 180n - 360$   
 $-36n = -360$   
 $n = 10$

Find the sum of the measures of the exterior angles of each convex polygon.

7. decagon  $= 360^\circ$

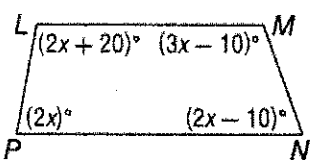
8. 16-gon  $= 360^\circ$

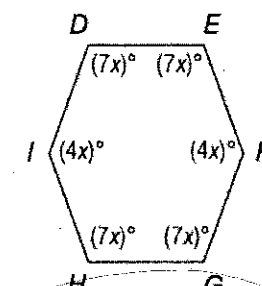
Find the measure of each exterior angle for each regular polygon.

9. 12-gon  $\frac{360}{12} = 30^\circ$

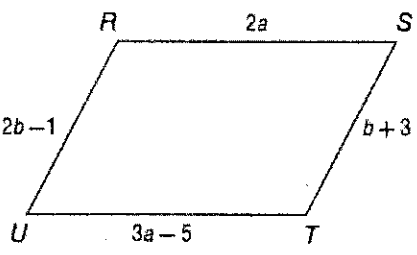
10. 36-gon  $\frac{360}{36} = 10^\circ$

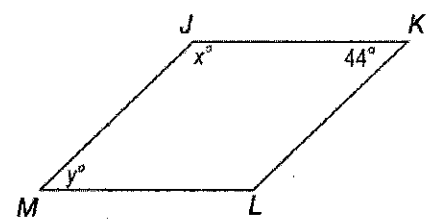
Find the measure of each interior angle.

11.   $\angle M = 3(40) - 10 = 110^\circ$   
 $\angle N = 2(40) - 10 = 70^\circ$   
 $\angle P = 2(40) = 80^\circ$   
 $m \angle L = 2(40) + 20 = 100^\circ$

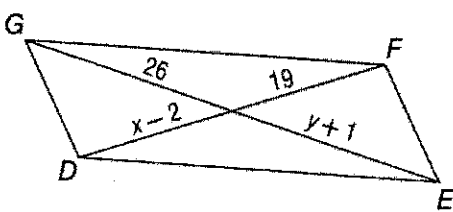
12.  Hexagon:  $(6-2)180 = 720^\circ$   
 $(7x)4 + (4x)2 = 720$   
 $28x + 8x = 720$   
 $36x = 720$   
 $x = 20$   
 $\angle D, E, H, G = 140^\circ$   
 $\angle I, F = 80^\circ$

Find the value of the variable(s) in each parallelogram.

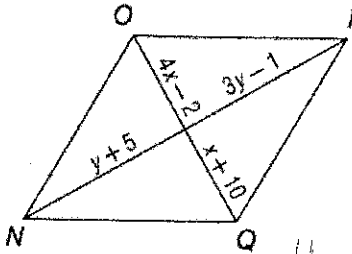
13.   $2b-1 = b+3$   
 $-b+1 = b+1$   
 $b = 4$   
 $2a = 3a-5$   
 $-3a - 2a$   
 $-1a = -5$   
 $a = 5$

14.   $44 = y$   
 $x + 44 = 180$   
 $-44 - 44$   
 $x = 136$

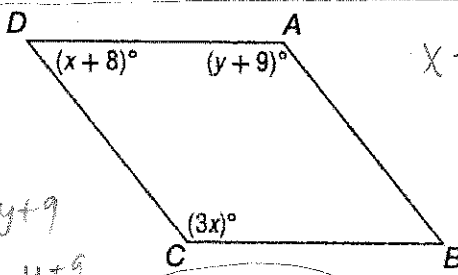
Find the value of the variable(s) in each parallelogram.

15. 

$26 = y+1$   
 $y = 25$   
 $x-2 = 19$   
 $x = 21$

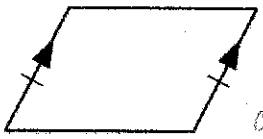
16. 

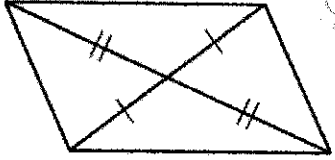
$y+5 = 3y-1$   
 $-y + 1 = -y + 1$   
 $6 = 2y$   
 $y = 3$   
 $4x-2 = x+10$   
 $-y + 1 = -y + 1$   
 $3x = 12$   
 $x = 4$


17. 

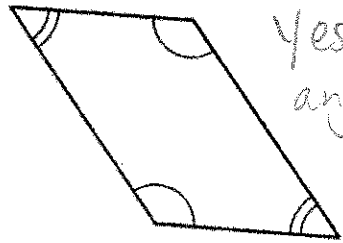
$x+8 + 3x = 180$   
 $-8 \quad -8$   
 $4x = 172$   
 $\frac{4x}{4} = \frac{172}{4}$   
 $x = 43$   
 $3x = y+9$   
 $3(43) = y+9$   
 $129 = y+9$   
 $y = 120$

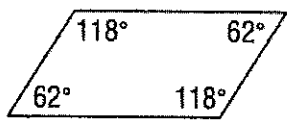
Determine whether each quadrilateral is a parallelogram. Justify your answer.

18.  Yes: one pair of sides is parallel and congruent.

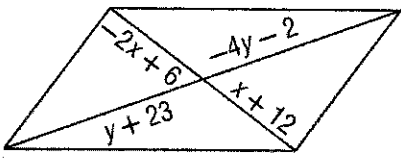
19.  both Yes: diagonals bisect each other.

20.  No: one pair of sides || and one pair ≅. Not enough info.

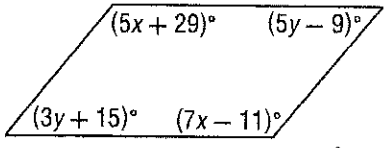
21.  both pairs of Yes: opposite angles congruent.

22.  Yes: both pairs of opposite angles are congruent.

Find x and y so that the quadrilateral is a parallelogram.

23. 

$-2x+6 = x+12$   
 $-6 = 3x$   
 $x = -2$   
 $y+23 = -4y-2$   
 $5y = -25$   
 $y = -5$

24. 

$5x+29 = 7x-11$   
 $-5x+11 = -5x+11$   
 $40 = 2x$   
 $x = 20$   
 $3y+15 = 5y-9$   
 $-3y+9 = -3y+9$   
 $24 = 2y$   
 $y = 12$