



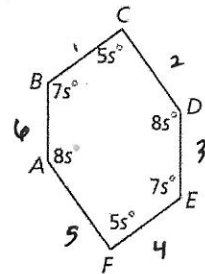
Vocabulary to define:

- Trapezoid base
- Concave
- Convex
- Diagonal
- Isosceles trapezoid
- Kite
- Midsegment of a trapezoid
- Parallelogram
- Rectangle
- Regular polygon
- Rhombus
- Side of a polygon
- Square
- Trapezoid
- Vertex of a polygon

1. Create a sketch of a regular convex polygon. 
2. Create a sketch of an irregular concave polygon. 

3. Find the sum of the interior angles for a dodecagon.  
 $(12-2)180 = 1,080^\circ$
4. Find the measure of each interior angle of a regular 20-gon.  
 $\frac{(20-2)180}{20} = 162^\circ$
5. Find the measure of each exterior angle of a regular heptagon.  
 $\frac{360}{7} = 51.43^\circ$

6. Find each measure for the polygon ABCDEF at right:
  - a. The sum of the interior angles  
 $(4)(180) = 720$
  - b. The measure of the smallest angle  
 $5.18 = 90^\circ$
  - c. The measure of the exterior angle off of vertex A

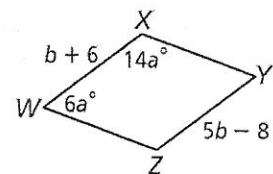


$8(18) = \cancel{144^\circ}$   
A

$36^\circ$

7. WXYZ is a parallelogram. Find each measure.

- a. WX 9.5
- b. YZ 9.5
- c.  $m\angle W$   $54^\circ$
- d.  $m\angle X$   $126^\circ$
- e.  $m\angle Y$   $54^\circ$
- f.  $m\angle Z$   $126^\circ$

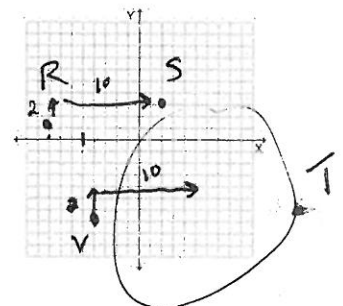


$5b-8 = b+6$   
 $4b = 14$   
 $b = 3.5$

$14a+6a = 180$   
 $a = 9$

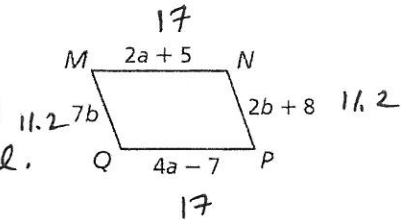
8. Three vertices of parallelogram RSTV are  $R(-8,1)$ ,  $S(2,3)$ , and  $V(-4,-7)$ . Find the coordinates of vertex T. Make a sketch to check your work.

$(6, -5)$



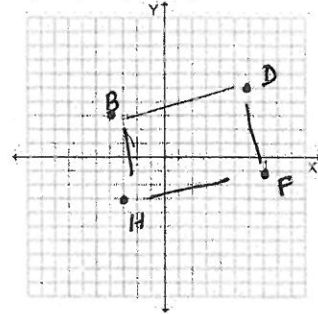
9. Show that MNPQ is a parallelogram given that  $a=6$  and  $b=1.6$

Both sets opposite sides are equal.



10. Show that the quadrilateral with vertices  $B(-4, 3)$ ,  $D(6, 5)$ ,  $F(7, -1)$ , and  $H(-3, -3)$  is a parallelogram.

- Show with slope calculations
- Show with distance calculations
- Complete a quick sketch.



a.)  $BD \parallel HF$        $BH \parallel DF$

$$\frac{5-3}{6+4} = \frac{2}{10} = \frac{-3+1}{-3-7} = \frac{-2}{-10} = \frac{1}{5}$$

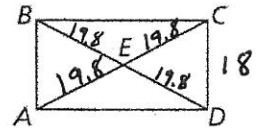
$$\frac{-4-3}{-3-6} = \frac{-7}{-9} = \frac{7}{9}$$

$$\frac{6-7}{5-(-1)} = \frac{-1}{6} = \frac{-1}{6}$$

b.)  $BD = \sqrt{10^2 + 2^2} = 10.2$   
 $HF = \sqrt{10^2 + 2^2} = 10.2$

11. In rectangle ABCD,  $CD = 18$ , and  $CE = 19.8$ .

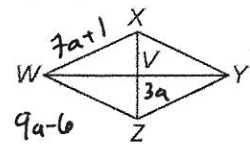
- Find length AB **18**
- Find length BE **19.8**



12. In rhombus WXYZ,  $WX = 7a+1$ ,  $WZ = 9a-6$ , and  $VZ = 3a$ .

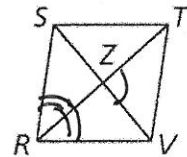
- Find length XY **25.5**       $7a+1 = 9a-6$
- Find length XZ **21**       $7 = 2a$   
 $3.5 = a$

$VZ = 3(3.5) = 10.5$   
 $2(VZ) = XZ$



13. In rhombus RSTV,  $m\angle TZV = (8n+18)^\circ$ , and  $m\angle SRV = (9n+1)^\circ$ .

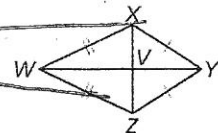
- Find  $m\angle TRS$  **41°** = 90°
  - Find  $m\angle TVR$  **98°**
- $n=9$   
 $\angle SRV = 82$   
 $\angle TRS = 41^\circ$



$8n+18=90$   
 $n=9$

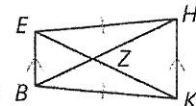
14. In kite WXYZ,  $m\angle WXY = 58^\circ$ , and  $m\angle ZWX = 50^\circ$ .

- Find  $m\angle ZWV$
- Find  $m\angle WZF$



15. Find the measure of BZ if  $ZH=70$  and  $EK=121.6$

$EK = BH$        $121.6 = 70 + BZ$   
**51.6**



16. Find the measure of MN

$\frac{67+30}{2} = MN$   
**48.5 = MN**

