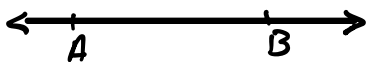
Segment: 

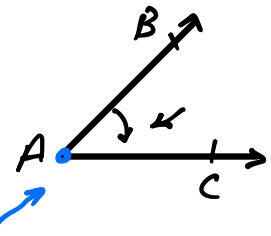
$\overline{AB} = \overline{BA}$

Ray: 

$\overrightarrow{AB}$

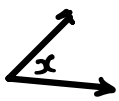
Line: 

$\overleftrightarrow{AB}$

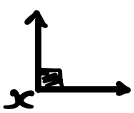
Angle: 

$\angle BAC$
$\angle CAB$
$\angle A$

Types:

1) Acute: 

$0 < x < 90$

2) Right: 

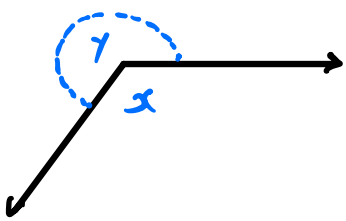
$x = 90^\circ$

3) Obtuse: 

$90 < x < 180$

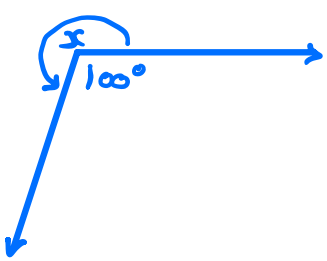
4) Straight: 

$B = 180^\circ$

5) Reflexive: 

$x + y = 360$

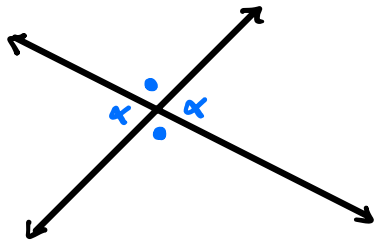
Ex: Find x ?



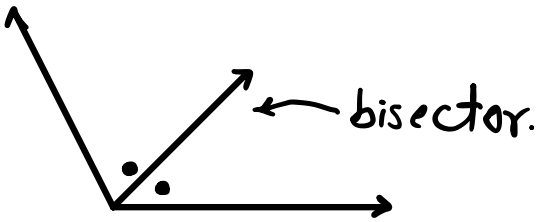
$x = 360 - 100$
$= 260$

Lines:

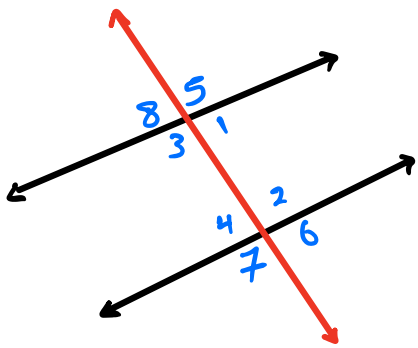
→ V.O.A



Angle bisector:

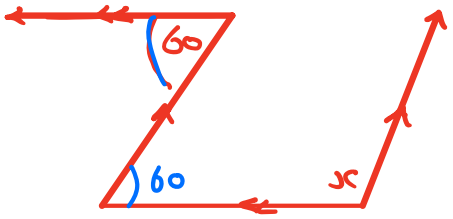


Parallel Lines:



* Alternate:
* Interior:
  $\hat{1} = \hat{4}$, $\hat{3} = \hat{2}$
* Exterior:
  $\hat{5} = \hat{7}$, $\hat{8} = \hat{6}$
* Corresponding
  $\hat{1} = \hat{6}$
  $\hat{2} = \hat{5}$
  $\hat{3} = \hat{7}$
  $\hat{4} = \hat{8}$
* Interior:
  $m(\angle 1) + m(\angle 2) = 180^\circ$
  $m(\angle 3) + m(\angle 4) = 180^\circ$

Ex. Find x?



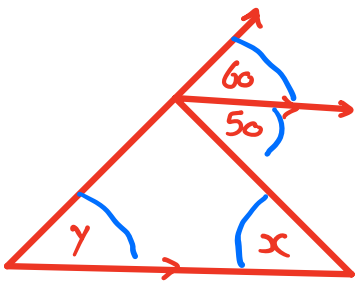
$x + 60 = 180$

$x = 120$

Find x, y?

$x = 50$

$y = 60$



Note:

Complementary angles

$x + y = 90$

Supplementary angles

$x + y = 180$

Polygons:

3_sides → Triangle

4_sides → Quadrilateral

5_sides → Pentagon.

6-sides → Hexagon

7_sides → Heptagon

8_sides → Octagon

* Sum of interior angles:

$= (n-2) \times 180$

Sides ↵

→ what is the sum of interior angles for hexagon?

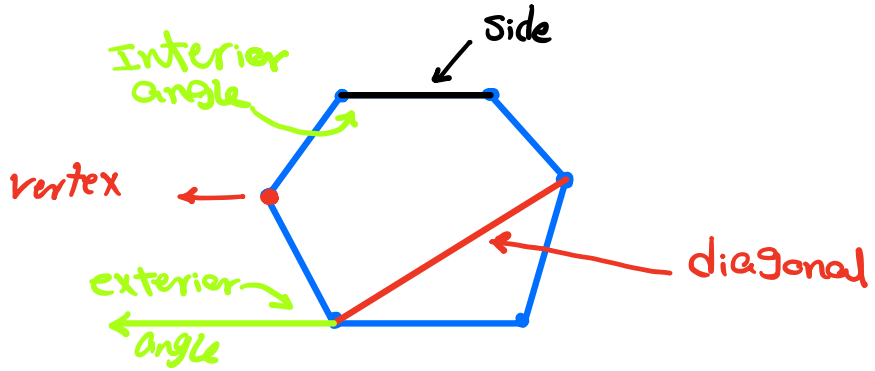
$n = 6$ ↵

$(n-2) \times 180$

$(6-2) \times 180$

$4 \times 180 = 720$

Sum of all exterior angles = 360



* Regular Polygon:

- Angles equal
- Sides equal.

---

* Measure of interior angle ?

$$\frac{(n-2) \times 180}{n}$$

* Measure of exterior angle = $\frac{360}{n}$

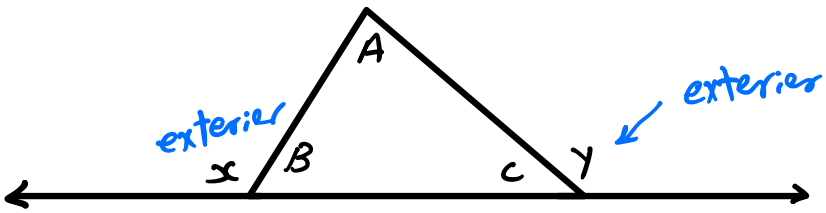
Ex.: Find the measure of interior angle For regular hexagon ?

$$= \frac{(n-2)\times 180}{n} = \frac{(6-2)\times 180}{6}$$

$$= \frac{4\times 180}{6} = 120^\circ$$

---

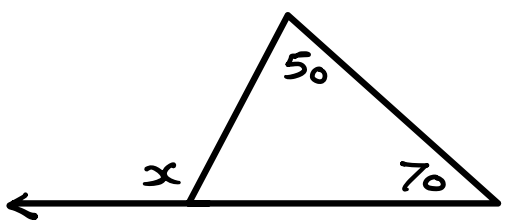
* Triangle:



$x = A + C \rightarrow x = 180 - B$

$y = A + B \rightarrow y = 180 - C$

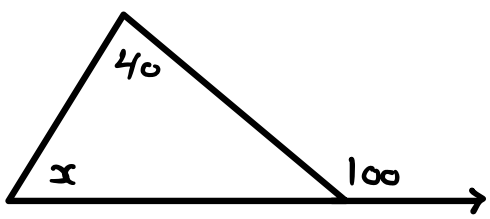
Find x ?



$x = 50 + 70$

$x = 120^\circ$

Find x ?

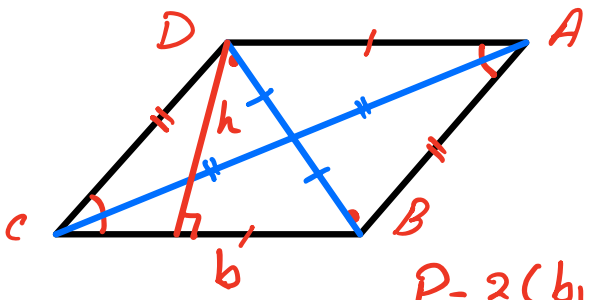


$x + 40 = 100$

$x = 60$

Quadrilaterals:

Parallelogram



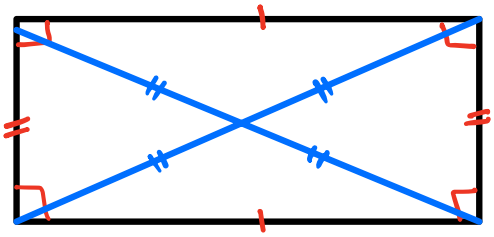
$A + B = 180$

$B + C = 180$

$P = 2(b_1 + b_2)$

$A = b \cdot h$

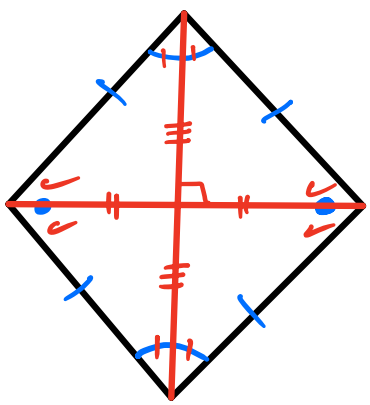
Rectangle.



$P = 2(L + w)$

$A = L \cdot w$

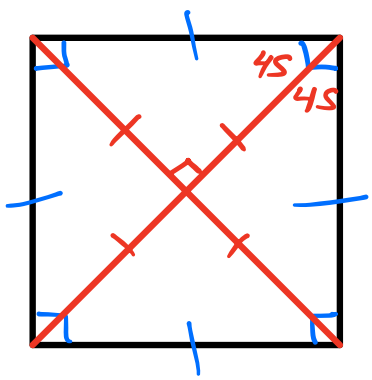
Rhombus



$P =$ Side $\times 4$

$A = \frac{1}{2} d_1 \times d_2$

Square



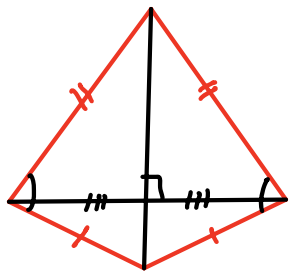
$P =$ Side $\times 4$

$A = (\text{Side})^2$

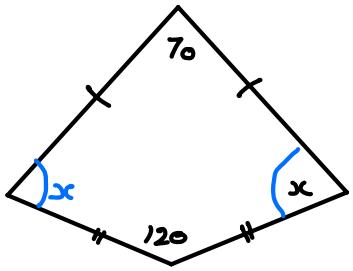
$= \frac{1}{2} (\text{diagonal})^2$

Kite:

$\text{Area} = \frac{1}{2} (d_1)(d_2)$



Ex: Find x?



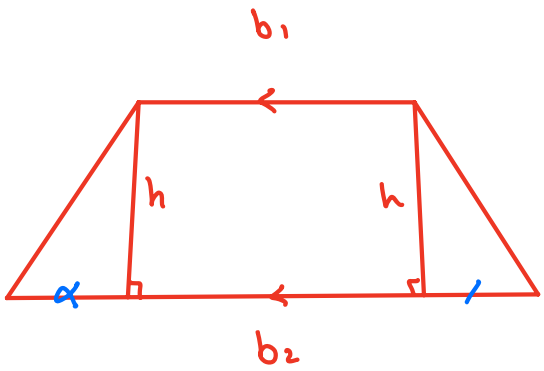
$360 - (120 + 70)$

$= 360 - 190$

$= 170$

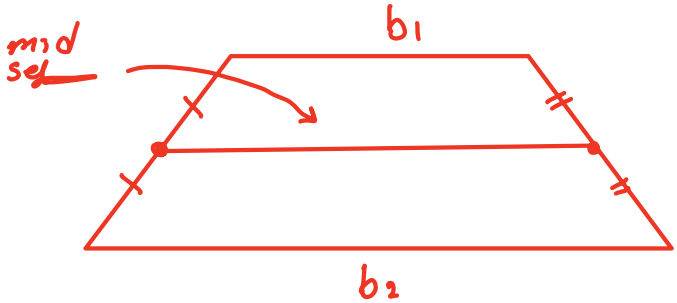
$x = \frac{170}{2} = 85$

Trapezoid



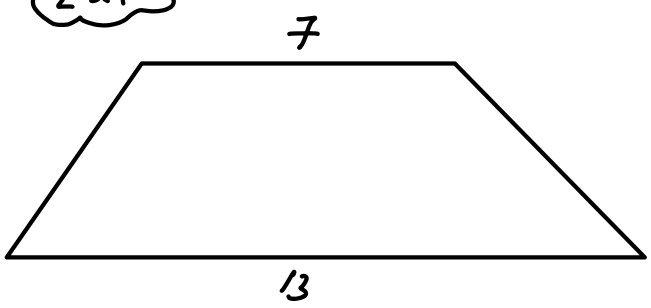
$\text{Area} = \frac{b_1 + b_2}{2} \times h$

Note → Mid segment:



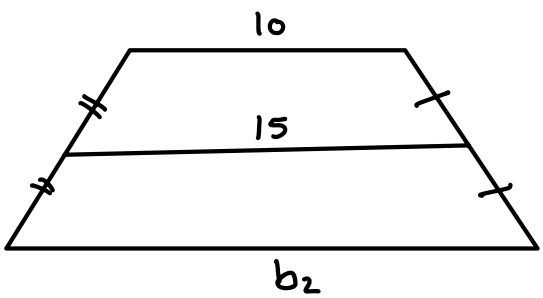
$= \frac{b_1 + b_2}{2}$

Ex:



Find mid segment?

$= \frac{7 + 13}{2} = 10$



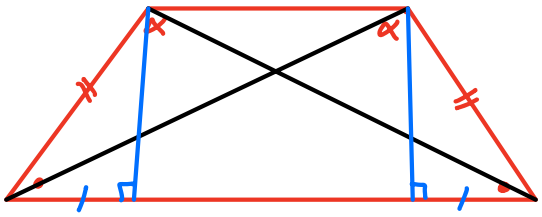
Find b_2?

$15 = \frac{10 + b_2}{2}$

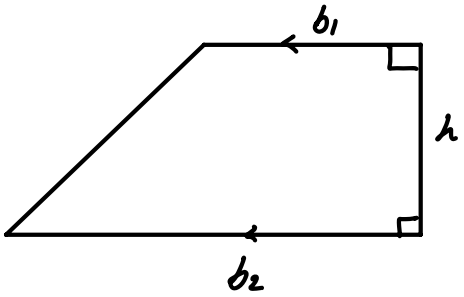
$10 + b_2 = 30$

$b_2 = 20$

* Isoceles trapezoid



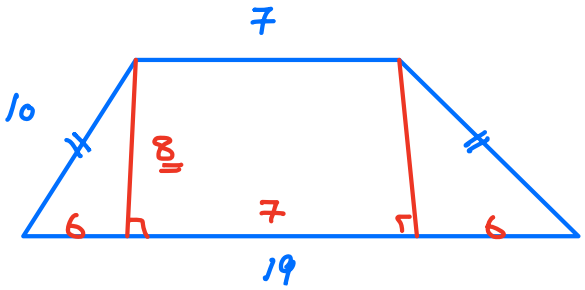
* Right trapezoid.



Ex: Find area ?

$h = \sqrt{10^2 - 6^2} = 8$

$A = \frac{7+19}{2} \times 8$



Ex: Find area ?

$area = \frac{10 + 10 + 7\sqrt{3}}{2} \times 7$