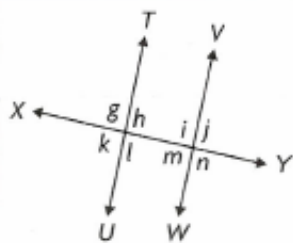


SOLUTIONS => Chapter 2 - Chapter Test.

MULTIPLE CHOICE



1. In the figure shown, which angles are supplementary interior angles?

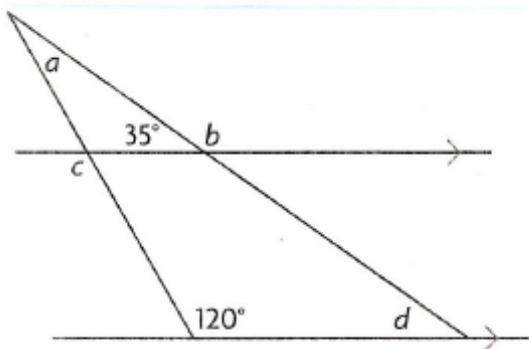
Option => "C" $\angle h$ and $\angle i$

2. Which angles are alternate interior angles?

Option => "D" $\angle h$ and $\angle m$

3. Which angles are supplementary exterior angles?

Option => "B" $\angle g$ and $\angle j$

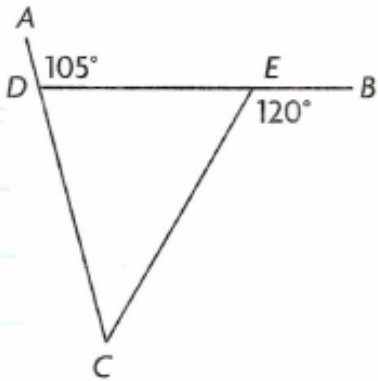


4. In the figure shown, what is the measure of $\angle a$?

Option \Rightarrow "A" $\angle a = 25^\circ$

5. What is the measure of $\angle c$?

Option \Rightarrow "C" $\angle c = 120^\circ$



6. In the figure shown, what is the measure of $\angle CDE$?

Option \Rightarrow "A" $\angle CDE = 75^\circ$

7. What is the measure of $\angle ECD$?

Option \Rightarrow "D" $\angle ECD = 45^\circ$

8. What is the measure of $\angle DEC$?

Option \Rightarrow "B" $\angle DEC = 60^\circ$

9. What is the sum of the measures of the interior angles of a polygon with 17 sides?

$$\begin{aligned}S(n) &= 180^\circ(n-2) \\S(17) &= 180^\circ(17-2) \\&= 180^\circ(15) \\&= 2700^\circ\end{aligned}$$

Option \Rightarrow "C"

10. What is the measure of each interior angle of a regular 18-sided polygon?

Each interior angle will be:

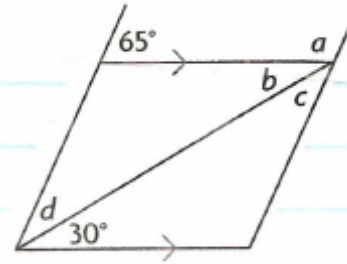
$$\begin{aligned}&\frac{180^\circ(n-2)}{n} \\&= \frac{180^\circ(18-2)}{18} \\&= 160^\circ\end{aligned}$$

Option \Rightarrow "C"

11. What is the measure of each exterior angle of a regular 17-sided polygon, to the nearest tenth?

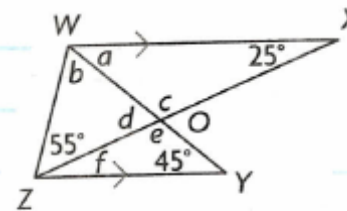
Sum of exterior angles = 360° Option \Rightarrow " B "
Each exterior angle would
therefore be: $\frac{360^\circ}{17}$
 $= 21.2^\circ$

12. Determine the measures of angles a , b , c , and d .



$$\angle a = \underline{115^\circ} \quad \angle b = \underline{30^\circ} \quad \angle c = \underline{35^\circ} \quad \angle d = \underline{35^\circ}$$

13. Determine the measures of the unknown angles in the figure $WXOYZ$.



$$\angle a = \underline{45^\circ} \quad \angle b = \underline{55^\circ} \quad \angle c = \underline{110^\circ}$$

$$\angle d = \underline{70^\circ} \quad \angle e = \underline{110^\circ} \quad \angle f = \underline{25^\circ}$$

14.

a) Determine the sum of the interior angles of a regular 18-sided polygon.

$$\begin{aligned}S(n) &= 180^\circ(n-2) \\S(18) &= 180^\circ(18-2) \\&= 180^\circ(16) \\&= \underline{2880^\circ}\end{aligned}$$

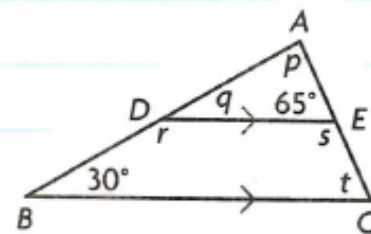
b) Determine the measure of an interior angle of a regular 18-sided polygon, to the nearest tenth.

$$\begin{aligned}\hookrightarrow \frac{180^\circ(n-2)}{n} \\&= \frac{180^\circ(18-2)}{18} \\&= \frac{180^\circ(16)}{18} \\&= \underline{160^\circ}\end{aligned}$$

c) Determine the measure of an exterior angle of a regular 18-sided polygon, to the nearest tenth.

$$\begin{aligned}\text{Sum of exterior angles} &= 360^\circ \\ \text{Each exterior angle} &= \frac{360^\circ}{18} \\ &= 20^\circ\end{aligned}$$

15. Determine the measures of angles p , q , r , s , and t .
Give reasons.



$$q = 30^\circ \text{ corresponding angles}$$

$$t = 65^\circ \text{ corresponding angles}$$

$$p = 180^\circ - 30^\circ - 65^\circ$$

$$= 85^\circ$$

interior angles in a triangle
sum to 180°

$$r = 180^\circ - 30^\circ$$

$$= 150^\circ$$

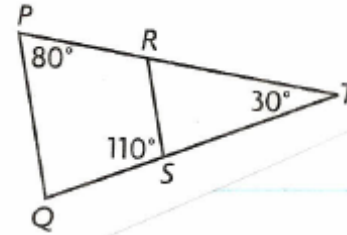
supplementary angles

$$s = 180^\circ - 65^\circ$$

$$= 115^\circ$$

supplementary angles

16. Prove that $PQ \parallel RS$



$$\angle RST = 180^\circ - 110^\circ$$

$$\angle RST = 70^\circ \quad \text{supplementary angles.}$$

$$\angle SRT + \angle RST + \angle RTS = 180^\circ$$

$$\angle SRT + 70^\circ + 30^\circ = 180^\circ$$

$$\angle SRT + 100^\circ = 180^\circ$$

$$\angle SRT = 180^\circ - 100^\circ$$

$$\angle SRT = 80^\circ \quad \text{interior angles in a triangle sum to } 180^\circ$$

$$\angle QPT = 80^\circ \quad \text{given}$$

$$\angle SRT = \angle QPT \quad \text{transitive property}$$

Therefore $PQ \parallel RS$ since corresponding angles are equal.

17. The sum of the measures of the interior angles of an unknown polygon is 3780° . Determine the number of sides that the polygon has. Show your work.

$$S(n) = 180^\circ(n-2)$$

$$3780 = 180^\circ n - 360^\circ$$

$$3780^\circ + 360^\circ = 180^\circ n$$

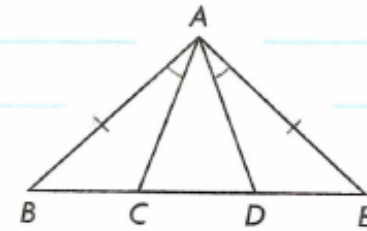
$$\frac{4140^\circ}{180^\circ} = \frac{180^\circ n}{180^\circ}$$

$$23 = n$$

$$23 = n$$

The polygon has 23 sides.

18. Prove that $\triangle ACD$ is isosceles.



$AB = AE$ given
 $\angle B = \angle E$ property of isosceles triangle
 $\angle BAC = \angle EAD$ given

$\therefore \triangle ABC \cong \triangle AED$ ASA
 therefore \downarrow congruent

$AC = AD$ corresponding sides

$\therefore \triangle ACD$ is isosceles.