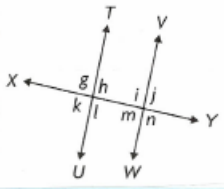
SOLUTIONS => Chapter 2 - Chapter Test

MULTIPLE CHOICE



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

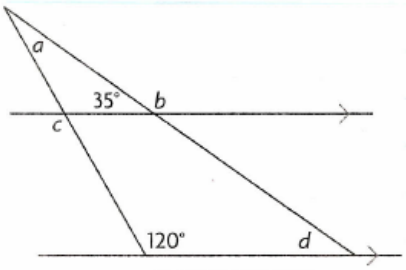
   Option => "C" $\angle h$ and $\angle i$

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 $\angle j$

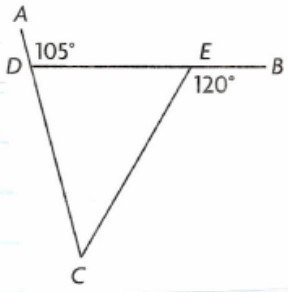


4. In the figure shown, what is the measure of $\angle a$?

Option $\Rightarrow$ "A" $\quad \angle a = 25°$

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

Option $\Rightarrow$ "C" $\quad \angle c = 120°$



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?

$S(n) = 180°(n-2)$

$S(17) = 180°(17-2)$

$= 180°(15)$

$= 2700°$

Option => "C"

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

Each interior angle will be:

$$\frac{180°(n-2)}{n}$$

$$= \frac{180°(18-2)}{18}$$

$= 160°$

Option => "C"

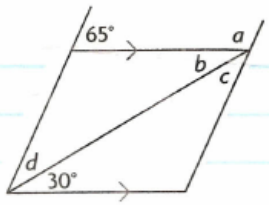
11. What is the measure of each exterior angle of a regular 17-sided polygon, to the nearest tenth?

Sum of exterior angles = 360° Option => "B"

Each exterior angle would therefore be: $\frac{360^\circ}{17}$

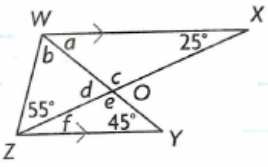
$= 21.2^\circ$

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



$\angle a = 115^\circ$ $\angle b = 30^\circ$ $\angle c = 35^\circ$ $\angle d = 35^\circ$

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



$\angle a = 45^\circ$ $\angle b = 55^\circ$ $\angle c = 110^\circ$

$\angle d = 70^\circ$ $\angle e = 110^\circ$ $\angle f = 25^\circ$

14.

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

$S(n) = 180°(n-2)$

$S(18) = 180°(18-2)$

$= 180°(16)$

$= 2880°$

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

↳ $\frac{180°(n-2)}{n}$

$= \frac{180°(18-2)}{18}$

$= \frac{180°(16)}{18}$

$= 160°$

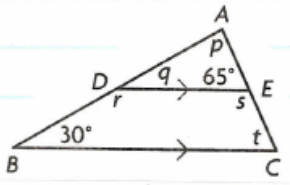
c) Determine the measure of an exterior angle of a regular 18-sided polygon, to the nearest tenth.

Sum of exterior angles = 360°

Each exterior angle = $\frac{360°}{18}$

= 20°

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



$q = 30°$ corresponding angles

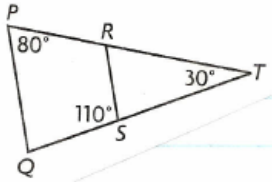
$t = 65°$ corresponding angles

$p = 180° - 30° - 65°$
$= 85°$ interior angles in a triangle sum to 180°

$r = 180° - 30°$
$= 150°$ supplementary angles

$s = 180° - 65°$
$= 115°$ supplementary angles

16. Prove that PQ || RS



$\angle RST = 180° - 110°$
$\angle RST = 70°$ supplementary angles.

$\angle SRT + \angle RST + \angle RTS = 180°$
$\angle SRT + 70° + 30° = 180°$
$\angle SRT + 100° = 180°$
$\angle SRT = 180° - 100°$
$\angle SRT = 80°$ interior angles in a triangle sum to 180°

$\angle QPT = 80°$ given
$\angle SRT = \angle QPT$ transitive property

Therefore PQ || 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.

$S(n) = 180°(n-2)$

$3780 = 180°n - 360°$

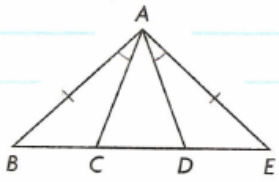
$3780° + 360° = 180°n$

$\frac{4140°}{180°} = \frac{180°n}{180°}$

$23 = n$

The polygon has 23 sides.

18. Prove that ΔACD is isosceles.



$AB = AE$ given

$\angle B = \angle E$ property of isosceles triangle

$\angle BAC = \angle EAD$ given

$\therefore \Delta ABC \cong \Delta AED$ ASA

(therefore; $\cong$: congruent)

$AC = AD$ corresponding sides

$\therefore \Delta ACD$ is isosceles.