Solutions

Award method and answer marks as indicated; accept equivalent correct methods.

2.1

- $a = 180 - 124 = \mathbf{56}^\circ$; **angles on a straight line**.

2.2

- $x = 360 - 95 - 140 = \mathbf{125}^\circ$; **angles at a point**.

2.3

- $y = 180 - 68 = \mathbf{112}^\circ$; **co-interior angles on parallel lines sum to 180 degrees**.

2.4

- $e = 360/10 = 36^\circ$; $i = 180 - e = \mathbf{144}^\circ$.

3.1

(a)

- $n = 360/e = 360/45 = \mathbf{8}$.

(b)

- $i = 180 - 45 = \mathbf{135}^\circ$.

(c)

- $S = (8 - 2)180 = \mathbf{1080}^\circ$; check $8(135) = 1080$.

3.2

(a)

- Base angles are equal, so $\beta = (180 - 44)/2 = \mathbf{68}^\circ$ at B and C.
- The exterior angle is $e = 180 - 68 = \mathbf{112}^\circ$, using a straight-line sum.

(b)

- The alternate angle is **68°**, because alternate angles are equal for parallel lines.
- Co-interior angles sum to 180°, giving $c = 180 - 68 = \mathbf{112}^\circ$.

3.3

- Angles on a straight line add to 180°: $3x + 36 = 180$.
- $3x = 144$, so $x = \mathbf{48}$.

3.4

(a)

- Interior and exterior angles add to 180°: $180 - 144 = \mathbf{36}^\circ$.

(b)

- The exterior angles of a polygon add to 360°: $360 \div 36$.
- **10** sides.