Year 8 Angles and Constructions – Developing

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Answers and worked solutions · 10 questions

A. Use angle facts and constructions

1. **x = 21 (alternate angles are equal)**

Alternate angles are equal: 3x + 12 = 75
3x = 63
x = 21

2. **x = 23 (corresponding angles are equal)**

Corresponding angles are equal: 4x + 48 = 140
4x = 92
x = 23

3. **x = 23 (angles on a straight line add up to 180°)**

Angles on a straight line add up to 180°: 4x + 28 + 60 = 180
4x = 92
x = 23

4. **5.35 cm from P; 90°**

Arcs (radius more than half PQ) from P and Q cross on both sides; join the crossing points
The bisector meets PQ at its midpoint, 5.35 cm from P, at 90°

5. **71° each**

Arc from the vertex across both arms; equal arcs from those points; join the vertex to where they cross
142 ÷ 2 = 71°

6. **angle C = 85° (measure it to check your drawing)**

Draw AB = 7 cm; measure 50° at A and 45° at B; the lines meet at C
Angles in a triangle: 180 − 50 − 45 = 85°

7. **x = 28°; the angles are 28° and 84°**

Exterior angle = sum of interior opposite angles: x + 3x = 112
4x = 112, x = 28
The angles are 28° and 84°

8. **x = 33°; the angles are 33° and 66°**

Exterior angle = sum of interior opposite angles: x + 2x = 99
3x = 99, x = 33
The angles are 33° and 66°

9. **x = 117°**

The exterior angle equals the sum of the two interior opposite angles
x = 82 + 35 = 117°

10. **a square**

Match the properties: a square