Year 6 maths: Angles on a line and at a point (Hard)

Maths · Shapes and space
Level: Hard

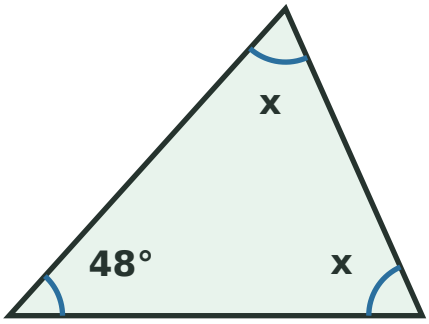
Student: _____ Date: _____

Instructions
- There are 10 questions. Read each one carefully.
- Write your answers on this paper. Use the space under a question to work it out.
- A grown-up can read a question aloud — that's fine.
- The answers are at the end. Check them together when you have finished.

Questions

1. The two angles marked x in this triangle are equal. Find x.

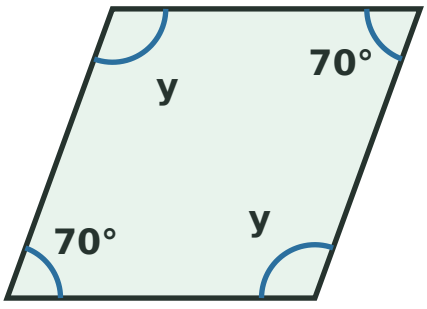
Answer: ____ °



Working:

2. Opposite angles of this four-sided shape are equal. Find y.

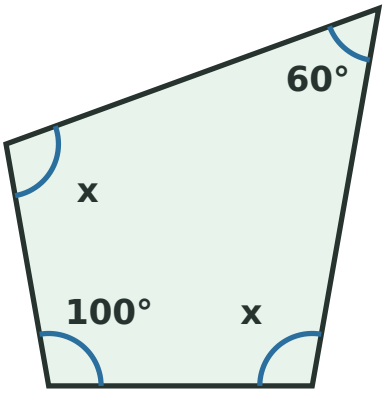
Answer: ____ °



Working:

3. The two angles marked x are equal. Find x.

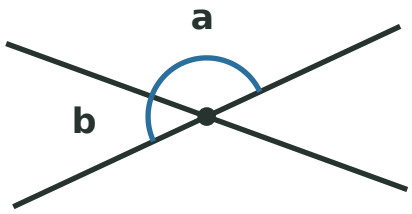
Answer: ____ °



Working:

4. Two lines cross. Angle a is three times angle b. Find b.

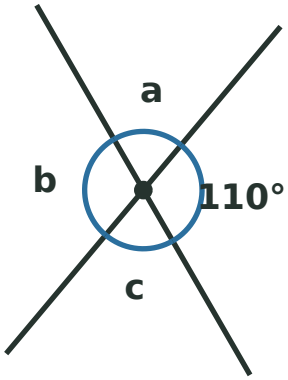
Answer: ____ °



Working:

5. Which set of sizes is right for a, b and c?

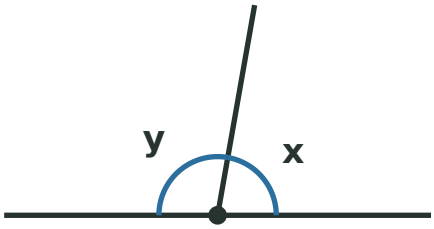
Circle one answer.



- ○ **A** a = 250°, b = 110°, c = 250°
- ○ **B** a = 70°, b = 70°, c = 110°
- ○ **C** a = 70°, b = 110°, c = 70°
- ○ **D** a = 110°, b = 70°, c = 110°

6. Angle x and angle y are on a straight line. y is 20° more than x. Which pair is right?

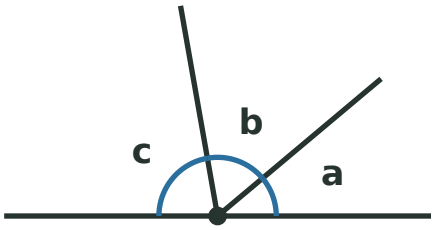
Circle one answer.



- ○ **A** x = 160°, y = 180°
- ○ **B** x = 80°, y = 100°
- ○ **C** x = 80°, y = 280°
- ○ **D** x = 90°, y = 90°

7. Angles a, b and c share a straight line in the ratio a : b : c = 2 : 3 : 4. Find angle c.

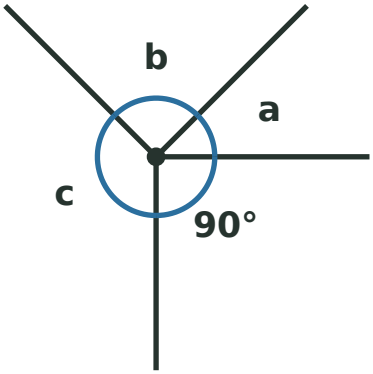
Answer: ____ °



Working:

8. Round a point there are four angles: a, b, c and 90°. Angle b is twice a and angle c is three times a. Find angle c.

Answer: ____ °



Working:

9. A triangle has angles of 30°, p and 2p. What is the size of the largest angle?

Answer: ____ °

Working:

10. A reflex angle of 252° is split by a ray into two angles in the ratio 4 : 3. What is the smaller angle?

Answer: ____ °

Working:

Answer key

Year 6 maths: Angles on a line and at a point (Hard) · Sheet 921855

1. 66°

180 − 48 = 132°, shared by two equal angles: 132 ÷ 2 = 66°.

2. 110°

70 + 70 = 140. 360 − 140 = 220°, shared by two equal angles: 110°.

3. 100°

100 + 60 = 160. 360 − 160 = 200°, shared by two equal angles: 100°.

4. 45°

a and b are on a straight line: a + b = 180°. a is 3 parts, b is 1 part: 4 parts = 180°, so b = 45°.

5. C — a = 70°, b = 110°, c = 70°

a and c are next to the 110° angle on straight lines: 180 − 110 = 70°. b is opposite 110°, so b = 110°.

6. B — x = 80°, y = 100°

x + y = 180° and y is 20 more: 180 − 20 = 160, shared equally: x = 80°, y = 100°.

7. 80°

2 + 3 + 4 = 9 parts make 180°. 1 part = 20°. c is 4 parts: 4 × 20 = 80°.

8. 135°

360 − 90 = 270° for a, b and c. They are 1 + 2 + 3 = 6 parts, so 1 part = 45°. c = 3 × 45 = 135°.

9. 100°

p + 2p = 3p = 180 − 30 = 150°. p = 50°. The largest is 2p = 100°.

10. 108°

4 + 3 = 7 parts make 252°. 1 part = 36°. The smaller is 3 × 36 = 108°.