Ratio and angles

ANSWERS

1

The angles in a triangle are in the ratio 2 : 3 : 4. Find the largest angle.

Total parts 2 + 3 + 4 = 9

One part 180° ÷ 9 = 20°

Angle 4 × 20° = 80°

Answer 80°

2

The angles in a quadrilateral are in the ratio 1 : 2 : 3 : 4. Find the largest angle.

Total parts 1 + 2 + 3 + 4 = 10

One part 360° ÷ 10 = 36°

Angle 4 × 36° = 144°

Answer 144°

3

Two angles on a straight line are in the ratio 7 : 5. Find the smaller angle.

Total parts 7 + 5 = 12

One part 180° ÷ 12 = 15°

Angle 5 × 15° = 75°

Answer 75°

4

Three angles around a point are in the ratio 3 : 4 : 5. Find the smallest angle.

Angle 3 × 30° = 90°

Answer 90°

5

In an isosceles triangle, each base angle and the top angle are in the ratio 2 : 5. Find the top angle.

the base angles are 2 parts each: 2 + 2 + 5 = 9 parts, 180 ÷ 9 = 20

Answer 100°

6

The angles in a pentagon are in the ratio 1 : 2 : 2 : 2 : 2. Find the largest angle.

a pentagon's angles add to 540°: 540 ÷ 9 = 60

Answer 120°

7

A right angled triangle has its other two angles in the ratio 4 : 5. Find the larger of these two angles.

the two angles add to 90°: 90 ÷ 9 = 10

Answer 50°

8

The interior angle and the exterior angle of a regular polygon are in the ratio 7 : 2. How many sides does the polygon have?

they add to 180°: 180 ÷ 9 = 20, so the exterior angle is 40° and 360 ÷ 40 = 9

Answer 9

Ratio and angles *further practice*

ANSWERS

9

The angles in a triangle are in the ratio 1 : 4 : 7. Find the largest angle.

180 ÷ 12 = 15

Answer 105°

10

Two neighbouring angles in a parallelogram are in the ratio 2 : 7. Find the obtuse angle.

neighbouring angles add to 180°: 180 ÷ 9 = 20

Answer 140°

11

The angles in a quadrilateral are in the ratio 3 : 4 : 5 : 6. Find the smallest angle.

360 ÷ 18 = 20

Answer 60°

12

The angles in a hexagon are in the ratio 2 : 2 : 3 : 3 : 3 : 3. Find the largest angle.

a hexagon's angles add to 720°: 720 ÷ 16 = 45

Answer 135°

13

Two angles on a straight line are in the ratio 4 : 5. The larger angle is the top angle of an isosceles triangle. Find a base angle of the triangle.

180 ÷ 9 = 20, so 100°; (180 − 100) ÷ 2

Answer 40°

14

The angles in a triangle are in the ratio 1 : 2 : k. The smallest angle is 20°. Find k.

20° and 40°, so the third angle is 120° = 6 × 20°

Answer $k = 6$

15

The interior angle of a regular polygon is 4 times its exterior angle.
How many sides does it have?

the ratio is 4 : 1, so the exterior angle is 180 ÷ 5 = 36° and 360 ÷ 36 = 10

Answer 10

16

The angles in a triangle are in the ratio 3 : 4 : 5. Zara divides 360° by 12 and says the largest angle is 150°.
Explain her mistake and find the largest angle.

angles in a triangle add to 180°, not 360°: 180 ÷ 12 = 15, 5 × 15

Answer 75°