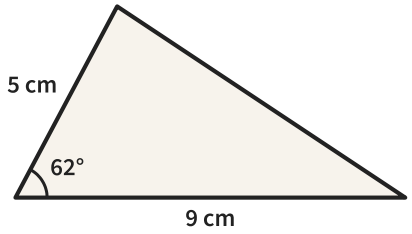
Area of a Triangle: ½ab sin C

ANSWERS

1

Find the area to 1 decimal place.



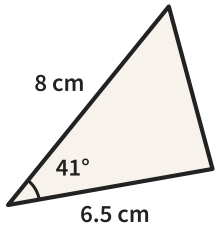
½ × 9 × 5 × sin 62°

Area = 19.866...

Area = 19.9 cm²

2

Find the area to 1 decimal place.



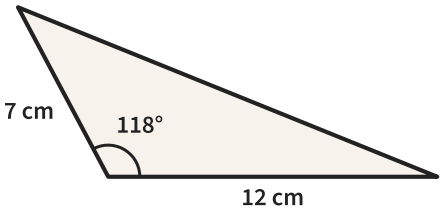
½ × 6.5 × 8 × sin 41°

Area = 17.058...

Area = 17.1 cm²

3

Find the area to 1 decimal place.



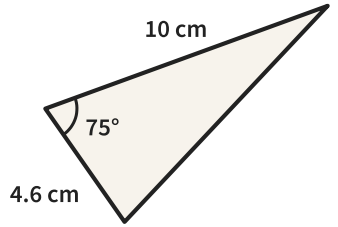
½ × 12 × 7 × sin 118°

Area = 37.084...

Area = 37.1 cm²

4

Find the area to 1 decimal place.



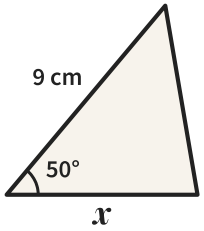
½ × 10 × 4.6 × sin 75°

Area = 22.216...

Area = 22.2 cm²

5

The area of the triangle is 24 cm².
Find x to 1 decimal place.



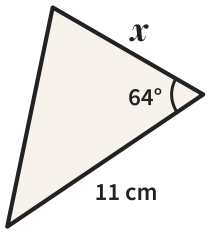
24 = ½ × 9 × x × sin 50°

24 = 3.4472... × x

x = 7.0 cm

6

The area of the triangle is 40 cm².
Find x to 1 decimal place.



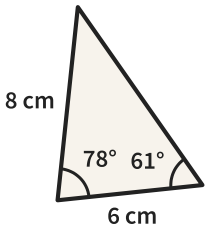
40 = ½ × 11 × x × sin 64°

40 = 4.9434... × x, x = 40 ÷ 4.9434...

x = 8.1 cm

7

Dev works out ½ × 6 × 8 × sin 61° and gets 21.0 cm². Explain his mistake.
Find the area to 1 decimal place.



61° is not between the two sides

use 78°: ½ × 6 × 8 × sin 78°

Area = 23.5 cm²

8

A piece of bunting is a triangle of fabric. Two of its edges are 18 cm long, with an angle of 36° between them. Find the area of the fabric to 1 decimal place.

½ × 18 × 18 × sin 36°

Area = 95.221...

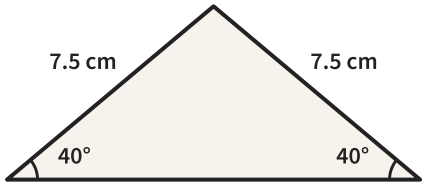
Answer = 95.2 cm²

Area of a Triangle: ½ab sin C *further practice*

ANSWERS

9

The triangle is isosceles. Find its area to 1 decimal place.



180 − 40 − 40 = 100°

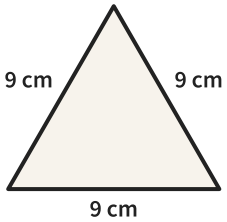
½ × 7.5 × 7.5 × sin 100°

27.7 cm²

Area

10

The triangle is equilateral. Find its area to 1 decimal place.



every angle is 60°

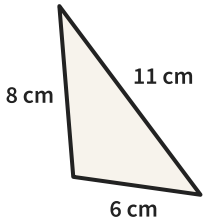
½ × 9 × 9 × sin 60°

35.1 cm²

Area

11

Find the area of the triangle to 1 decimal place.



cos C = −21 ÷ 96, C = 102.636...°

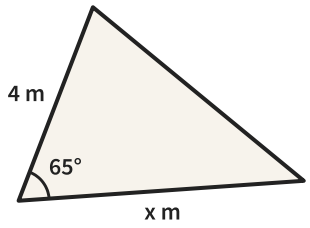
½ × 6 × 8 × sin 102.636...°

23.4 cm²

Area

12

A triangular lawn has an area of 10 m². Two of its sides are 4 m and x m, with 65° between them. Find x to 1 decimal place.



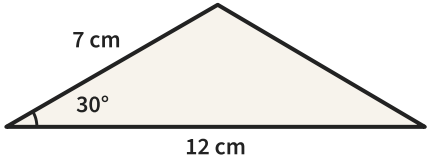
10 = 1.8126... × x

5.5 m

x =

13

Without a calculator, show that the area of this triangle is 21 cm². (sin 30° = ½)



½ × 12 × 7 × sin 30° = ½ × 84 × ½

21 cm²

Area

14

ABCD is a quadrilateral. Its diagonal AC is 9 cm. AB = 6 cm, AD = 5 cm, angle BAC = 40° and angle CAD = 55°. Find the area of ABCD to 1 decimal place.

ABC: ½ × 6 × 9 × sin 40° = 17.355...

ACD: ½ × 9 × 5 × sin 55° = 18.431...

35.8 cm²

Area

15

A triangular school garden has sides of 40 m, 55 m and 72 m. Find its area to 1 decimal place.

cos C = −0.1270..., C = 97.299...°

½ × 40 × 55 × sin 97.299...°

1091.1 m²

Area

16

A right-angled triangle has sides of 5 cm and 12 cm either side of the right angle. Amara says ½ab sin C and ½ × base × height give the same area. Show that she is right.

½ × 5 × 12 × sin 90° = 30

½ × base × height = ½ × 12 × 5 = 30

30 cm² both ways

Area