4.15 Introduction to Trigonometry: 1-hour Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write down the exact value of sin 30°.

(1)

---

2 From a point 34 m from the base of a tower on level ground, the angle of elevation of the top of the tower is 43°. Work out the height of the tower. Give your answer correct to 1 decimal place.

(4)

---

3 From a point 39 m from the base of a tower on level ground, the angle of elevation of the top of the tower is 25°. Work out the height of the tower. Give your answer correct to 1 decimal place.

(4)

---

4 Write down the exact value of cos 30°.

(1)

© Revision Library | revisionlibrary.co.uk

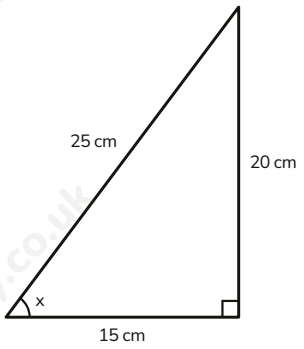
5 A ramp 37 m long makes an angle of 40° with the horizontal. Work out the horizontal distance the ramp covers. Give your answer correct to 1 decimal place.

(3)

---

6 In a right-angled triangle the sides are 15 cm, 20 cm and 25 cm. The angle x is opposite the side of length 20.
Write down the value of sin x as a fraction.

Diagram NOT accurately drawn

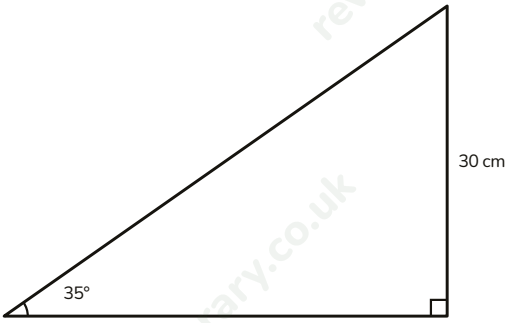


(1)

© Revision Library | revisionlibrary.co.uk

7 In a right-angled triangle, one angle is 35°. The opposite side is 30 cm. Work out the length of the hypotenuse. Give your answer correct to 1 decimal place.

Diagram NOT accurately drawn

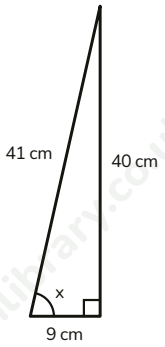


(3)

---

8 In a right-angled triangle the sides are 9 cm, 40 cm and 41 cm. The angle x is opposite the side of length 40.
Write down the value of tan x as a fraction.

Diagram NOT accurately drawn

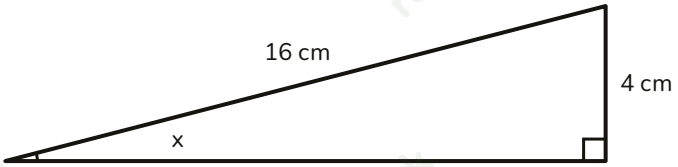


(1)

© Revision Library | revisionlibrary.co.uk

9 In a right-angled triangle the side opposite angle x is 4 cm and the hypotenuse is 16 cm. Work out the size of angle x. Give your answer correct to 1 decimal place.

Diagram NOT accurately drawn



(3)

---

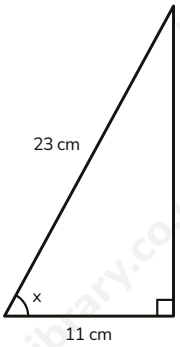
10 A ramp 22 m long makes an angle of 68° with the horizontal. Work out the horizontal distance the ramp covers. Give your answer correct to 1 decimal place.

(3)

© Revision Library | revisionlibrary.co.uk

11 In a right-angled triangle the side adjacent to angle x is 11 cm and the hypotenuse is 23 cm. Work out the size of angle x. Give your answer correct to 1 decimal place.

Diagram NOT accurately drawn

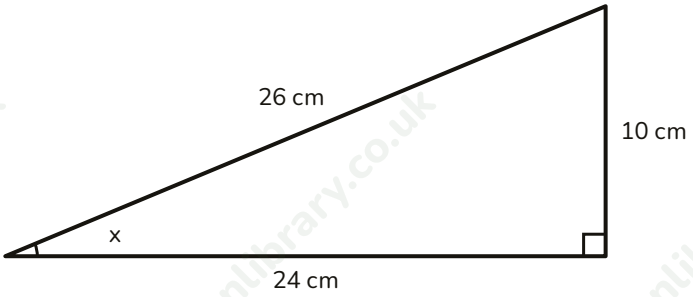


(3)

---

12 In a right-angled triangle the sides are 10 cm, 24 cm and 26 cm. The angle x is opposite the side of length 10.
Write down the value of tan x as a fraction.

Diagram NOT accurately drawn



(1)

© Revision Library | revisionlibrary.co.uk

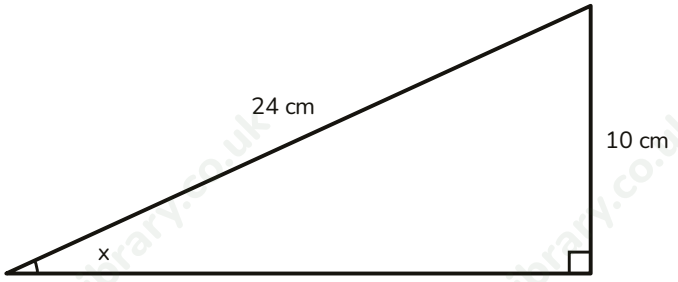
13 From a point 25 m from the base of a tower on level ground, the angle of elevation of the top of the tower is 24°. Work out the height of the tower. Give your answer correct to 1 decimal place.

(4)

---

14 In a right-angled triangle the side opposite angle x is 10 cm and the hypotenuse is 24 cm. Work out the size of angle x. Give your answer correct to 1 decimal place.

Diagram NOT accurately drawn

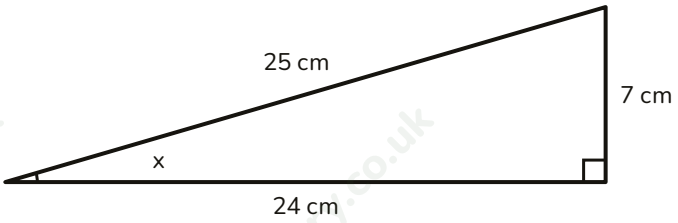


(3)

© Revision Library | revisionlibrary.co.uk

15 In a right-angled triangle the sides are 7 cm, 24 cm and 25 cm. The angle x is opposite the side of length 7.
Write down the value of sin x as a fraction.

Diagram NOT accurately drawn

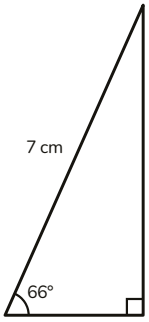


(1)

---

16 In a right-angled triangle, one angle is 66°. The hypotenuse is 7 cm. Work out the length of the adjacent side. Give your answer correct to 1 decimal place.

Diagram NOT accurately drawn

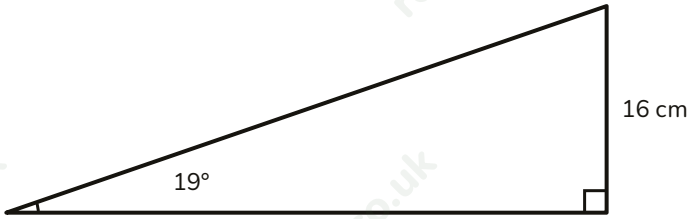


(3)

© Revision Library | revisionlibrary.co.uk

17 In a right-angled triangle, one angle is 19°. The opposite side is 16 cm. Work out the length of the adjacent side. Give your answer correct to 1 decimal place.

Diagram NOT accurately drawn

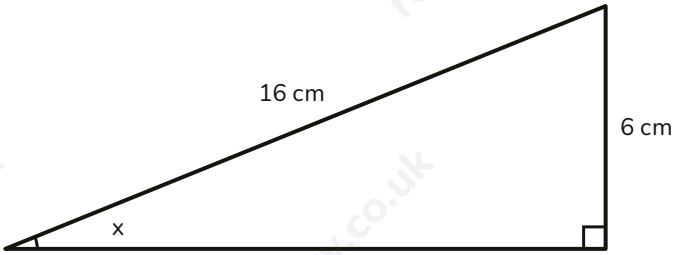


(3)

© Revision Library | revisionlibrary.co.uk

18 In a right-angled triangle the side opposite angle x is 6 cm and the hypotenuse is 16 cm. Work out the size of angle x. Give your answer correct to 1 decimal place.

Diagram NOT accurately drawn

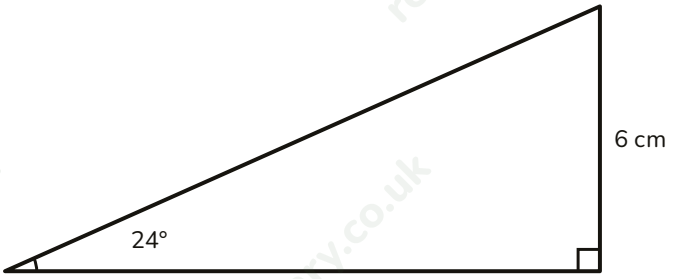


(3)

---

19 A right-angled triangle has an acute angle of 24 degrees and the side opposite this angle is 6 cm. Find the length of the hypotenuse, to 1 decimal place.

Diagram NOT accurately drawn



(2)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 4.15 Introduction to Trigonometry: 1-hour Pack

Question 1

1/2 cao	B1

Answer: **1/2**

Question 2

draws or identifies a right-angled triangle with the correct sides	M1
tan 43 = h/34	M1
34 x tan 43	M1
31.7 m cao	A1

Answer: **31.7 m**

Question 3

draws or identifies a right-angled triangle with the correct sides	M1
tan 25 = h/39	M1
39 x tan 25	M1
18.2 m cao	A1

Answer: **18.2 m**

Question 4

$\sqrt{3}/2$ cao	B1

Answer: **$\sqrt{3}/2$**

Question 5

cos 40 = x/37	M1
37 x cos 40	M1
28.3 m cao	A1

Answer: **28.3 m**

Question 6

20/25 cao	B1

Answer: **20/25**

Question 7

sin 35 = 30/hypotenuse	M1
30 ÷ sin 35	M1
52.3 cm cao	A1

Answer: **52.3 cm**

Question 8

40/9 cao	B1

Answer: **40/9**

Question 9

correct ratio chosen: sin x = 4/16	M1
inverse sin used: $\sin^{-1}(4/16)$	M1
14.5° cao	A1

Answer: **14.5°**

Question 10

cos 68 = x/22	M1
22 x cos 68	M1
8.2 m cao	A1

Answer: **8.2 m**

Question 11

correct ratio chosen: cos x = 11/23	M1
inverse cos used: $\cos^{-1}(11/23)$	M1
61.4° cao	A1

Answer: **61.4°**

Question 12

10/24 cao	B1

Answer: **10/24**

Question 13

draws or identifies a right-angled triangle with the correct sides	M1
tan 24 = h/25	M1
25 x tan 24	M1
11.1 m cao	A1

Answer: **11.1 m**

Question 14

correct ratio chosen: sin x = 10/24	M1
inverse sin used: $\sin^{-1}(10/24)$	M1
24.6° cao	A1

Answer: **24.6°**

Question 15

7/25 cao	B1

Answer: **7/25**

Question 16

cos 66 = adjacent/hypotenuse used correctly	M1
7 x cos 66	M1
2.8 cm cao	A1

Answer: **2.8 cm**

Question 17

tan 19 = 16/adjacent	M1
16 ÷ tan 19	M1
46.5 cm cao	A1

Answer: **46.5 cm**

Question 18

correct ratio chosen: sin x = 6/16	M1
inverse sin used: $\sin^{-1}(6/16)$	M1
22.0° cao	A1

Answer: **22.0°**

Question 19

method: hypotenuse = 6 / sin(24)	M1
14.8 cm to 1 dp cao	A1

Answer: **14.8 cm**

© Revision Library | revisionlibrary.co.uk