

Exact values of trigonometric ratios

Grade 6 | Higher | 15 questions, 41 marks

GCSE Maths topic practice



Scan for the solutions

Name: _____ **Date:** _____ **Score:** _____ / 41

- 1** Write down the exact value of $\sin 30^\circ$. (1 mark)

Answer _____

- 2** Write down the exact value of
- a. $\cos 30^\circ$
 - b. $\sin 45^\circ$
 - c. $\tan 60^\circ$
- (3 marks)

Answer _____

- 3** Write down the exact value of $\tan 45^\circ$. (1 mark)

Answer _____

- 4** x is an acute angle. Use exact values to find x when
- a. $\sin x = \frac{1}{2}$
 - b. $\cos x = \frac{1}{2}$
 - c. $\tan x = 1$
- (3 marks)

Answer _____

5 Work out the exact value of $\sin 60^\circ \times \cos 30^\circ$.

Give your answer as a fraction.

(2 marks)

Answer _____

6 Show that $\sin 60^\circ \div \tan 60^\circ = \cos 60^\circ$

(2 marks)

Answer _____

7 Work out the exact value of $(\sin 30^\circ + \cos 60^\circ) \times \tan 60^\circ$.

(2 marks)

Answer _____

8 An equilateral triangle has sides of length 10 cm.

a. Use trigonometry to show that the height of the triangle is $5\sqrt{3}$ cm.

b. Work out the exact area of the triangle.

(4 marks)

Answer _____

9 A square has sides of length 8 cm. Use trigonometry to show that its diagonal is $8\sqrt{2}$ cm.

(3 marks)

Answer _____

- 10 In triangle ABC, angle ABC = 90° and angle BAC = 30° .
AC = 14 cm.
Without using a calculator, work out the length of BC.
You must show your working.

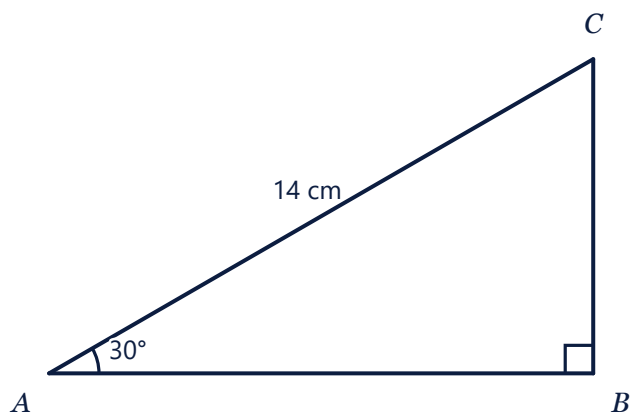


Diagram NOT accurately drawn

(3 marks)

Answer _____

11 In triangle PQR, angle PQR = 90° and angle QPR = 45° .

PQ = 8 cm.

Without using a calculator, work out the exact length of PR.

Give your answer in the form $k\sqrt{2}$.

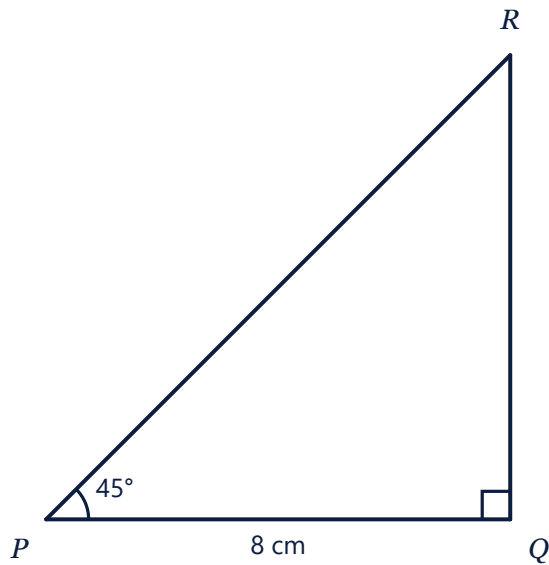


Diagram NOT accurately drawn

(3 marks)

Answer _____

12 In triangle DEF, angle DEF = 90° and angle EDF = 60° .

DE = 5 cm.

Without using a calculator, work out the exact length of EF.

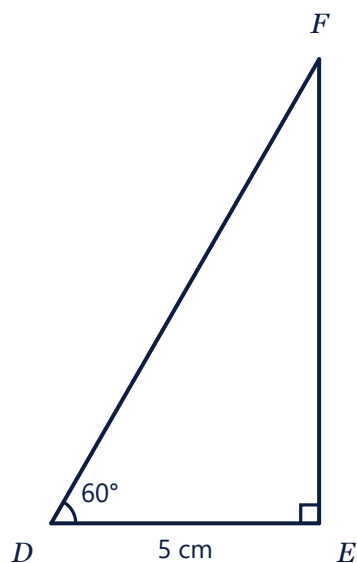


Diagram NOT accurately drawn

(3 marks)

Answer _____

13 In triangle JKL, angle JKL = 90° .

JK = 6 cm and JL = 12 cm.

Without using a calculator, find the size of angle JLK.

You must show your working.

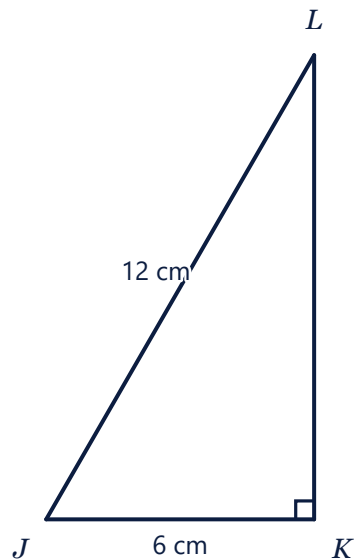


Diagram NOT accurately drawn

(3 marks)

Answer _____

14 Work out the exact value of

$$\tan 30^\circ \times \tan 60^\circ + \cos 45^\circ \times \sin 45^\circ$$

Give your answer as a fraction.

(3 marks)

Answer _____

15

ABCD is a trapezium in which AB is parallel to DC.

Angle $ADC = 90^\circ$, angle $BCD = 60^\circ$, $AB = 6\text{ cm}$ and $DC = 10\text{ cm}$.

Without using a calculator, work out the exact area of the trapezium.

Give your answer in the form $k\sqrt{3}\text{ cm}^2$.

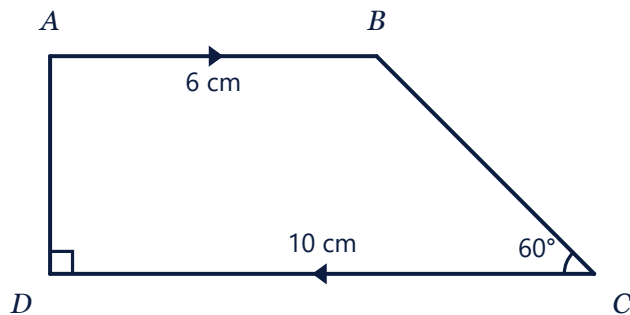


Diagram NOT accurately drawn

(5 marks)

Answer

End of questions | Total 41 marks