

Exact trig values

discia.org · 10 questions · 26 marks

NAME _____

DATE _____

- 1 Write down the exact value of $\sin 45^\circ$.

 NON-CALCULATOR 1 MARK

You must not use a calculator.

- 2 Part of a table of exact trigonometric values is shown below.

 NON-CALCULATOR 2 MARKS

x	$\sin x$	$\cos x$	$\tan x$
30°	$\frac{1}{2}$		

Complete the row. Give each value exactly. You must not use a calculator.

- 3 Work out the exact value of $\tan 45^\circ + \cos 0^\circ$.

 NON-CALCULATOR 2 MARKS

You must not use a calculator.

- 4 x is a number with $0 \leq x \leq 90$.

 NON-CALCULATOR 2 MARKS

Solve $\cos x^\circ = 0$.

You must not use a calculator.

- 5 ABC is a right-angled triangle.

 NON-CALCULATOR 3 MARKS

Angle $ABC = 90^\circ$, angle $BAC = 30^\circ$ and $AC = 12$ cm.

(a) State the exact value of $\sin 30^\circ$.

(b) Work out the exact length of BC .

- 6 Show that the value of $4 \tan 60^\circ \times \cos 30^\circ + 2 \sin 30^\circ$ is an integer.  NON-CALCULATOR 3 MARKS

You must show your working. Do not use a calculator.

-
- 7 Show that $\frac{26 \cos 60^\circ - \tan 45^\circ}{8 \cos 30^\circ}$ can be written as $\tan (x + 16)^\circ$,
where $(x + 16)^\circ$ is an acute angle.  NON-CALCULATOR 4 MARKS

You must not use a calculator. State the value of x .

-
- 8 x and y are acute angles.  NON-CALCULATOR 3 MARKS

$$\cos x = \frac{\sqrt{3}}{2}$$

$$\tan y = \frac{\sqrt{3}}{3}$$

$$w = 6x - 4y$$

Work out the exact value of $4 \tan w$.

You must show your working.

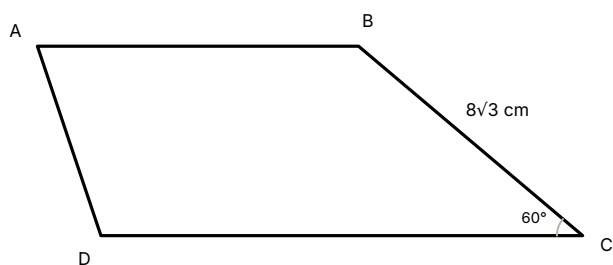


Diagram NOT accurately drawn

$ABCD$ is a trapezium. AB is parallel to DC .

Angle $BCD = 60^\circ$ and $BC = 8\sqrt{3}$ cm.

The area of the trapezium is 180 cm^2 .

$AB : DC = 2 : 3$

Find the length of DC .

You must not use a calculator.

10 Write down the exact value of $\cos 60^\circ$.

NON-CALCULATOR 1 MARK

You must not use a calculator.

1	$\frac{\sqrt{2}}{2}$	2	$\cos 30^\circ = \frac{\sqrt{3}}{2}$ and $\tan 30^\circ = \frac{\sqrt{3}}{3}$
3	2	4	90
5	(a) $\frac{1}{2}$ (b) 6 cm	6	Exact values written, the surds cancel: $4 \times \frac{3}{2} = 6$ and 1 is added, so the value is 7, an integer
7	44	8	$4\sqrt{3}$
9	18 cm	10	$\frac{1}{2}$