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Exact Trig Values

Grade 5 topic · Foundation and Higher · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Foundation students: aim for Questions 1–15 (50 marks) and have a go at the rest. Higher students: complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 73 marks.

Warm-up

1 Write down the exact value of cos 30°. **[2 marks]**

Answer _____

2 Write down the exact value of cos 60°. **[2 marks]**

Answer _____

3 Write down the exact value of sin 45°. **[2 marks]**

Answer _____

4 Write down the exact value of sin 60°. **[2 marks]**

Answer _____

5 Write down the exact value of tan 30°. **[2 marks]**

Answer _____

Core

6 Work out the exact value of sin 45° × tan 45°. Give your answer as a simplified surd or fraction. **[4 marks]**

Answer _____

7 Work out the exact value of tan 60° × sin 30°. Give your answer as a simplified surd or fraction. **[4 marks]**

Answer _____

8 Work out the exact value of tan 30° × cos 60°. Give your answer as a simplified surd or fraction. **[4 marks]**

Answer _____

9 Work out the exact value of tan 30° × sin 30°. Give your answer as a simplified surd or fraction. **[4 marks]**

Answer _____

10 Work out the exact value of cos 30° × tan 45°. Give your answer as a simplified surd or fraction. **[4 marks]**

Answer _____

Stretch

11 Work out the exact value of cos 60° + tan 45°. **[4 marks]**

Answer _____

12 Work out the exact value of cos 45° + sin 45°. **[4 marks]**

Answer _____

13 Work out the exact value of cos 30° + sin 60°. **[4 marks]**

Answer _____

14 Work out the exact value of sin 30° + cos 45°. **[4 marks]**

Answer _____

15 Work out the exact value of cos 60° + sin 45°. **[4 marks]**

Answer _____

Challenge

16 Work out the exact value of sin 60° ÷ cos 30°. **[4 marks]**

Answer _____

17 Work out the exact length of x in a right-angled triangle with hypotenuse 10 cm and an angle of 30° opposite x. **[5 marks]**

Answer _____

18 A right-angled triangle has an angle of 45° and an adjacent side of 6 cm. Work out the exact length of the hypotenuse. **[5 marks]**

Answer _____

19 Show that $(\sin 60°)^2 + (\cos 60°)^2 = 1$. **[4 marks]**

Answer _____

20 Work out the exact area of a right-angled triangle with hypotenuse 8 cm and angles 30°, 60°, 90°. **[5 marks]**

Answer _____