ENGLAND GCSE MATHS OCR HIGHER · UNIT 11 · 25 QUESTIONS

Geometry, Pythagoras, Trigonometry and Vectors — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **A sailing ship sails 6 km east and then 8 km north. How far is it from its starting point?**

- **A** 10
- **B** 14
- **C** 11
- **D** 9

Understand It with Pulse | Flag a mistake

2 **A kite string is 8 m long and makes an angle of 30° with the ground. The height of the kite is**

- A 5
- B 8
- C 4
- D 3

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3 **A brown dog walks 3 m east and then 4 m north. How far is it from its starting point?**

- A 5
- B 4
- C 6
- D 7

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4 **A rocket climbs at an angle of 30° to the ground and travels 200 m. Its height is**

- A 100
- B 110
- C 200
- D 90

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5 **A ladder 10 m long leans against a wall. Its foot is 6 m from the wall. How high up the wall does it reach?**

- A 8
- B 10
- C 6
- D 12

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6 **A passenger aeroplane takes off at an angle of 30° and flies 300 m. Its height is**

A 150

B 160

C 300

D 140

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7 **In a triangle, side a = 6 cm is opposite an angle of 30° and side b is opposite an angle of 60°. The length of side b is**

A 12<svg viewBox="0 0 101 100" preserveAspectRatio="none" aria-hidden="true" style="position:absolute;left:0;top:-.14em;width:100%;height:calc(100% + 0.14em);overflow:visible"><path d="M3 52 L21 97 L40 6 L101 6" fill="none" stroke="currentColor" stroke-width="2.6" stroke-linejoin="round" stroke-linecap="round" vector-effect="non-scaling-stroke"/></svg>3square root of 3

B 6

C 6<svg viewBox="0 0 101 100" preserveAspectRatio="none" aria-hidden="true" style="position:absolute;left:0;top:-.14em;width:100%;height:calc(100% + 0.14em);overflow:visible"><path d="M3 52 L21 97 L40 6 L101 6" fill="none" stroke="currentColor" stroke-width="2.6" stroke-linejoin="round" stroke-linecap="round" vector-effect="non-scaling-stroke"/></svg>3square root of 3

D 3<svg viewBox="0 0 101 100" preserveAspectRatio="none" aria-hidden="true" style="position:absolute;left:0;top:-.14em;width:100%;height:calc(100% + 0.14em);overflow:visible"><path d="M3 52 L21 97 L40 6 L101 6" fill="none" stroke="currentColor" stroke-width="2.6" stroke-linejoin="round" stroke-linecap="round" vector-effect="non-scaling-stroke"/></svg>3<span

style="position:absolute;width:1px;height:1px;overflow:hidden;clip:rect(0 0 0 0);white-space:nowrap">square root of 3

Understand It with Pulse | Flag a mistake

8 **A cuboid is 2 cm by 3 cm by 6 cm. The longest diagonal is**

- A 6 cm
- B 8 cm
- C 11 cm
- D 7 cm

Understand It with Pulse | Flag a mistake

9 **A triangle has sides 6 cm and 10 cm with an included angle of 30°. Its area is**

- A 60 cm^2
- B 20 cm^2
- C 15 cm^2
- D 30 cm^2

Understand It with Pulse | Flag a mistake

10 **In a right-angled triangle, the hypotenuse is 14 cm and one angle is 60°. The side next to the 60° angle is**

A 6 cm

B 14 cm

C 8 cm

D 7 cm

Understand It with Pulse | Flag a mistake

11 **The exact value of tan 60° is**

A <svg viewBox="0 0 101 100" preserveAspectRatio="none" aria-hidden="true" style="position:absolute;left:0;top:-.14em;width:100%;height:calc(100% + 0.14em);overflow:visible"><path d="M3 52 L21 97 L40 6 L101 6" fill="none" stroke="currentColor" stroke-width="2.6" stroke-linejoin="round" stroke-linecap="round" vector-effect="non-scaling-stroke"/></svg>3square root of 3/2

B 1

C <svg viewBox="0 0 101 100" preserveAspectRatio="none" aria-hidden="true" style="position:absolute;left:0;top:-.14em;width:100%;height:calc(100% + 0.14em);overflow:visible"><path d="M3 52 L21 97 L40 6 L101 6" fill="none" stroke="currentColor" stroke-width="2.6" stroke-linejoin="round" stroke-linecap="round" vector-effect="non-scaling-stroke"/></svg>2square root of 2/2

D <svg viewBox="0 0 101 100" preserveAspectRatio="none" aria-hidden="true" style="position:absolute;left:0;top:-.14em;width:100%;height:calc(100% + 0.14em);overflow:visible"><path d="M3 52 L21 97 L40 6 L101 6" fill="none" stroke="currentColor" stroke-width="2.6" stroke-linejoin="round" stroke-linecap="round" vector-effect="non-scaling-stroke"/></svg>3<span

style="position:absolute;width:1px;height:1px;overflow:hidden;clip:rect(0 0 0 0);white-space:nowrap">square root of 3

Understand It with Pulse | Flag a mistake

12 **In a right-angled triangle, one angle is 45° and the side next to it is 10 cm. The side opposite the 45° angle is**

A 11 cm

B 9 cm

C 10 cm

D 20 cm

Understand It with Pulse | Flag a mistake

13 **Two sides of a triangle are 8 cm and 10 cm, with an included angle of 60°. The third side is, to one decimal place, about**

A 18 cm

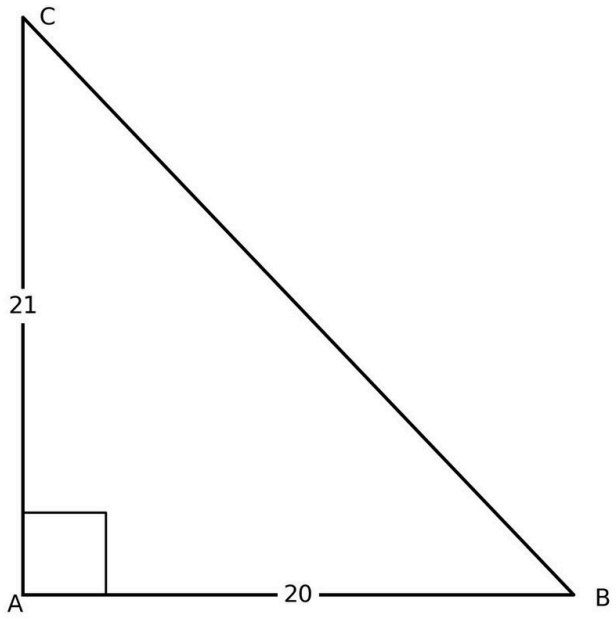
B 10.2 cm

C 12.8 cm

D 9.2 cm

Understand It with Pulse | Flag a mistake

14 **A right-angled triangle has one side of length 20 cm and the other side of length 21 cm. The hypotenuse is**



A 41 cm

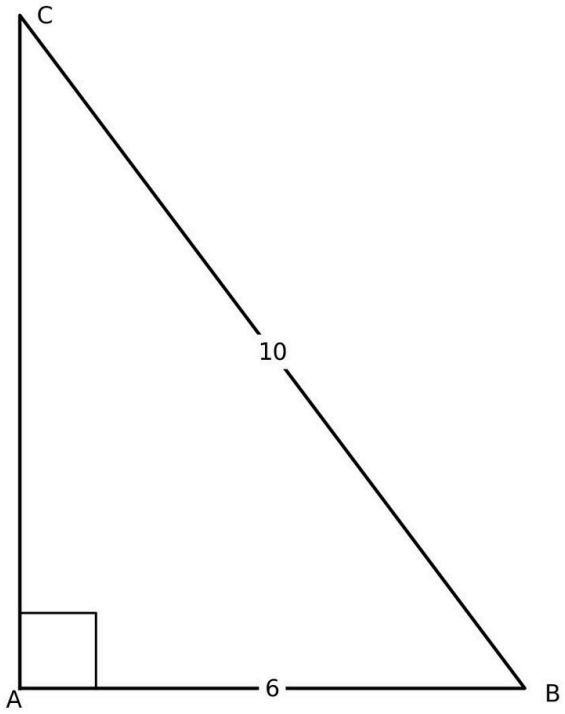
B 29 cm

C 28 cm

D 30 cm

Understand It with Pulse | Flag a mistake

15 **A right-angled triangle has a hypotenuse of 10 cm and one side of length 6 cm. The other side is**



- **A** 4 cm
- **B** 8 cm
- **C** 7 cm
- **D** 9 cm

Understand It with Pulse | Flag a mistake

16 **The vector a = (4, 3) and the vector b = (2, 2). The vector a + b is**

A (2, 1)

B (6, 5)

C (7, 5)

D (6, 1)

Understand It with Pulse | Flag a mistake

17 **ABCD is a parallelogram. Vector AB is a and vector AD is b. Vector AC is**

A a + b

B 2a

C a - b

D b - a

Understand It with Pulse | Flag a mistake

18 The vector (6, 8) has magnitude

- A 10
- B 9
- C 14
- D 11

Understand It with Pulse | Flag a mistake

19 In a right-angled triangle, the hypotenuse is 12 cm and one angle is 30°. The side opposite the 30° angle is

- A 12 cm
- B 6 cm
- C 7 cm
- D 5 cm

Understand It with Pulse | Flag a mistake

20 **In a triangle, side a = 10 cm is opposite an angle of 45° and side b is opposite an angle of 30°. The length of side b is**

A 2<svg viewBox="0 0 101 100" preserveAspectRatio="none" aria-hidden="true" style="position:absolute;left:0;top:-.14em;width:100%;height:calc(100% + 0.14em);overflow:visible"><path d="M3 52 L21 97 L40 6 L101 6" fill="none" stroke="currentColor" stroke-width="2.6" stroke-linejoin="round" stroke-linecap="round" vector-effect="non-scaling-stroke"/></svg>2square root of 2

B 10

C 10<svg viewBox="0 0 101 100" preserveAspectRatio="none" aria-hidden="true" style="position:absolute;left:0;top:-.14em;width:100%;height:calc(100% + 0.14em);overflow:visible"><path d="M3 52 L21 97 L40 6 L101 6" fill="none" stroke="currentColor" stroke-width="2.6" stroke-linejoin="round" stroke-linecap="round" vector-effect="non-scaling-stroke"/></svg>2square root of 2

D 5<svg viewBox="0 0 101 100" preserveAspectRatio="none" aria-hidden="true" style="position:absolute;left:0;top:-.14em;width:100%;height:calc(100% + 0.14em);overflow:visible"><path d="M3 52 L21 97 L40 6 L101 6" fill="none" stroke="currentColor" stroke-width="2.6" stroke-linejoin="round" stroke-linecap="round" vector-effect="non-scaling-stroke"/></svg>2<span

style="position:absolute;width:1px;height:1px;overflow:hidden;clip:rect(0 0 0 0);white-space:nowrap">square root of 2

Understand It with Pulse | Flag a mistake

21 **A cuboid is 8 cm by 9 cm by 12 cm. The longest diagonal is**

A 17 cm

B 18 cm

C 29 cm

D 16 cm

Understand It with Pulse | Flag a mistake

22 **A triangle has sides 8 cm and 10 cm with an included angle of 30°. Its area is**

A 80 cm²

B 40 cm²

C 20 cm²

D 25 cm²

Understand It with Pulse | Flag a mistake

23 **In a right-angled triangle, the hypotenuse is 10 cm and one angle is 60°. The side next to the 60° angle is**

- **A** 5 cm
- **B** 10 cm
- **C** 4 cm
- **D** 6 cm

Understand It with Pulse | Flag a mistake

24 **The exact value of cos 60° is**

A <svg viewBox="0 0 101 100" preserveAspectRatio="none" aria-hidden="true" style="position:absolute;left:0;top:-.14em;width:100%;height:calc(100% + 0.14em);overflow:visible"><path d="M3 52 L21 97 L40 6 L101 6" fill="none" stroke="currentColor" stroke-width="2.6" stroke-linejoin="round" stroke-linecap="round" vector-effect="non-scaling-stroke"/></svg>3square root of 3

B $\frac{1}{2}$

C 1

D <svg viewBox="0 0 101 100" preserveAspectRatio="none" aria-hidden="true" style="position:absolute;left:0;top:-.14em;width:100%;height:calc(100% + 0.14em);overflow:visible"><path d="M3 52 L21 97 L40 6 L101 6" fill="none" stroke="currentColor" stroke-width="2.6" stroke-linejoin="round" stroke-linecap="round" vector-effect="non-scaling-stroke"/></svg>3square root of 3/2

Understand It with Pulse | Flag a mistake

25 **In a right-angled triangle, one angle is 45° and the side next to it is 9 cm. The side opposite the 45° angle is**

A 8 cm

B 9 cm

C 18 cm

D 10 cm

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ANSWER KEY

1.	A	**10.**	D	**19.**	B
2.	C	**11.**	D	**20.**	D
3.	A	**12.**	C	**21.**	A
4.	A	**13.**	D	**22.**	C
5.	A	**14.**	B	**23.**	A
6.	A	**15.**	B	**24.**	B
7.	C	**16.**	B	**25.**	B
8.	D	**17.**	A		
9.	C	**18.**	A		

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