

6. Trigonometry

Starter Quiz · 课前小测

IGCSE Mathematics

Name: _____ Score: _____

1. A right-angled triangle has short sides 3 cm and 4 cm. Find the hypotenuse (cm).

2. In a right-angled triangle the hypotenuse is 10 cm and the angle is 30° . The opposite side = $10 \times \sin 30^\circ$. Find it (cm).

3. What is the exact value of $\sin 30^\circ$? (as a decimal)

4. A triangle has $b = 7$, $c = 8$ and the angle between them $A = 40^\circ$. Using $a^2 = 49 + 64 - 2(7)(8)\cos 40^\circ \approx 27.2$, find a (1 dp).

5. A box has a base 6 cm by 8 cm. Find the length of the base diagonal (cm).

6. The area of any triangle (two sides a , b with angle C between them) is:
☐ $\frac{1}{2}ab \sin C$
☐ $ab \cos C$
☐ $\frac{1}{2}ab$
☐ $a^2 + b^2$
7. The hypotenuse of a right-angled triangle is:
☐ the longest side, opposite the right angle
☐ the shortest side
☐ next to the right angle
☐ always 5 cm
8. You know all three sides and want an angle. Which rule do you use?
☐ cosine rule
☐ sine rule
☐ Pythagoras only
☐ SOH-CAH-TOA

9. In a 3-D problem you look for a right-angled triangle inside the solid to work with.

☐ True ☐ False

10. A triangle with sides 6, 8, 10 is right-angled.

☐ True ☐ False

1. **5**

$\sqrt{(3^2 + 4^2)} = \sqrt{25} = 5 \text{ cm.}$

2. **5**

$10 \times \sin 30^\circ = 10 \times 0.5 = 5 \text{ cm.}$

3. **0.5**

$\sin 30^\circ = 1/2 = 0.5.$

4. **5.2**

$a = \sqrt{27.2} \approx 5.2 \text{ cm.}$

5. **10**

$\sqrt{(6^2 + 8^2)} = \sqrt{100} = 10 \text{ cm.}$

6. **$\frac{1}{2}ab \sin C$**

Area = $\frac{1}{2}ab \sin C$ uses two sides and the included angle.

7. **the longest side, opposite the right angle**

The hypotenuse is the longest side and lies opposite the 90° angle.

8. **cosine rule**

With three sides (or two sides and the included angle), use the cosine rule.

9. **True**

The whole 3-D method is to reduce it to a flat right-angled triangle.

10. **True**

$6^2 + 8^2 = 36 + 64 = 100 = 10^2$. It is a multiple of the 3-4-5 triple.