Multiple choice questions - Sine rule, cosine rule and area of a triangle

Year: Year 11 · 10

Question 1 (Higher) The sine rule is

- ○ **A.** $\frac{a}{\sin A} = \frac{b}{\sin B}$
- ○ **B.** $\frac{a}{\cos A} = \frac{b}{\cos B}$
- ○ **C.** $a \sin A = b \sin B$
- ○ **D.** $\frac{\sin A}{b} = \frac{\sin B}{a}$

Question 2 (Higher) Two sides and the angle between them are known. Use

- ○ **A.** sine rule
- ○ **B.** cosine rule
- ○ **C.** Pythagoras
- ○ **D.** none

Question 3 (Higher) Three sides are known. To find an angle use

- ○ **A.** sine rule
- ○ **B.** cosine rule
- ○ **C.** tangent
- ○ **D.** area formula

Question 4 (Higher) Area of a triangle is

- ○ **A.** $\frac{1}{2}ab$
- ○ **B.** $\frac{1}{2}ab \sin C$
- ○ **C.** $ab \sin C$
- ○ **D.** $\frac{1}{2}ab \cos C$

Question 5 (Higher) In triangle ABC, A=30, B=90, a=5. The side b is

- ○ **A.** 5
- ○ **B.** 10
- ○ **C.** 2.5
- ○ **D.** $5\sqrt{2}$

Question 6 (Higher) If cos A is negative, angle A is

- ◯ **A.** acute
- ◯ **B.** obtuse
- ◯ **C.** a right angle
- ◯ **D.** zero

Question 7 (Higher) The longest side of a triangle is opposite the

- ◯ **A.** smallest angle
- ◯ **B.** largest angle
- ◯ **C.** right angle only
- ◯ **D.** any angle

Question 8 (Higher) An equilateral triangle of side 2 has area

- ◯ **A.** $\sqrt{3}$
- ◯ **B.** $2\sqrt{3}$
- ◯ **C.** $\frac{\sqrt{3}}{2}$
- ◯ **D.** 2

Question 9 (Higher) The sine rule needs

- ◯ **A.** a right angle
- ◯ **B.** a matching side and angle pair
- ◯ **C.** three sides
- ◯ **D.** only angles

Question 10 (Higher) Cosine rule to find a side: $a^2 =$

- ◯ **A.** $b^2 + c^2 + 2bc\cos A$
- ◯ **B.** $b^2 + c^2 - 2bc\cos A$
- ◯ **C.** $b^2 - c^2 - 2bc\cos A$
- ◯ **D.** $b + c - 2bc\cos A$

Answer grid - Sine rule, cosine rule and area of a triangle

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Question	Answer	Explanation
1	**A**	Side over sine of opposite angle.
2	**B**	Cosine rule.
3	**B**	Rearranged cosine rule.
4	**B**	Two sides and the included angle.
5	**B**	b=5 sin90/sin30=10.
6	**B**	Between 90 and 180 degrees.
7	**B**	Largest side opposite largest angle.
8	**A**	1/2 x 2 x 2 x sin60 = sqrt3.
9	**B**	A side and its opposite angle.
10	**B**	Standard form.