

A2.A.74: Using Trigonometry to Find Area 1: Determine the area of a triangle or a parallelogram, given the measure of two sides and the included angle

- 1 Jack is planting a triangular rose garden. The lengths of two sides of the plot are 8 feet and 12 feet, and the angle between them is 87° . Which expression could be used to find the area of this garden?
 - 1) $8 \cdot 12 \cdot \sin 87^\circ$
 - 2) $8 \cdot 12 \cdot \cos 87^\circ$
 - 3) $\frac{1}{2} \cdot 8 \cdot 12 \cdot \cos 87^\circ$
 - 4) $\frac{1}{2} \cdot 8 \cdot 12 \cdot \sin 87^\circ$
- 2 If the vertex angle of an isosceles triangle measures 30° and each leg measures 4, the area of the triangle is
 - 1) $8\sqrt{3}$
 - 2) 8
 - 3) $4\sqrt{3}$
 - 4) 4
- 3 The vertex angle of isosceles triangle ABC measures 30° , and each leg has length 20. What is the area of $\triangle ABC$?
 - 1) 100
 - 2) $100\sqrt{2}$
 - 3) $100\sqrt{3}$
 - 4) 200
- 4 In $\triangle ABC$, $b = 2$, $c = 4$, and $m\angle A = 30$. The area of $\triangle ABC$ is
 - 1) 1
 - 2) 2
 - 3) $\sqrt{3}$
 - 4) 4
- 5 In $\triangle ABC$, side a is twice as long as side b and $m\angle C = 30$. In terms of b , the area of $\triangle ABC$ is
 - 1) $0.25b^2$
 - 2) $0.5b^2$
 - 3) $0.866b^2$
 - 4) b^2
- 6 The sides of a triangle measure 6 and 8, and the measure of the included angle is 150° . The area of the triangle is
 - 1) $24\sqrt{3}$
 - 2) 24
 - 3) $12\sqrt{3}$
 - 4) 12
- 7 If $m\angle B = 60$, $a = 6$, and $c = 10$, what is the area of $\triangle ABC$?
 - 1) 15
 - 2) 30
 - 3) $15\sqrt{3}$
 - 4) $30\sqrt{3}$
- 8 In isosceles triangle ABC , $\overline{AB} \cong \overline{BC}$, $m\angle B = 45$, and $AB = 3\sqrt{2}$. The area of the triangle is
 - 1) $\frac{9}{2}$
 - 2) $9\sqrt{2}$
 - 3) $\frac{9\sqrt{2}}{2}$
 - 4) $\frac{3\sqrt{2}}{2}$
- 9 In $\triangle ABC$, $a = 8$, $b = 9$, and $m\angle C = 135$. What is the area of $\triangle ABC$?
 - 1) 18
 - 2) 36
 - 3) $18\sqrt{2}$
 - 4) $36\sqrt{2}$
- 10 In $\triangle ABC$, $m\angle C = 30$ and $a = 8$. If the area of the triangle is 12, what is the length of side b ?
 - 1) 6
 - 2) 8
 - 3) 3
 - 4) 4

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1	ANS: 4	PTS: 2	REF: 060704b
2	ANS: 4	PTS: 2	REF: 010127siii
3	ANS: 1	PTS: 2	REF: 089326siii
4	ANS: 2	PTS: 2	REF: 089917siii
5	ANS: 2	PTS: 2	REF: 069729siii
6	ANS: 4	PTS: 2	REF: 088623siii
7	ANS: 3	PTS: 2	REF: 089623siii
8	ANS: 3	PTS: 2	REF: 089833siii
9	ANS: 3	PTS: 2	REF: 019835siii
10	ANS: 1	PTS: 2	REF: 080120siii