G.SRT.D.9: Using Trigonometry to Find Area 1

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) $8 \cdot 12 \cdot \sin 87°$
2) $8 \cdot 12 \cdot \cos 87°$
3) $\frac{1}{2} \cdot 8 \cdot 12 \cdot \cos 87°$
4) $\frac{1}{2} \cdot 8 \cdot 12 \cdot \sin 87°$

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 150º. 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 $\triangle ABC$, $a = 8$, $b = 9$, and m$\angle C = 135$. What is the area of $\triangle ABC$?
1) 18
2) 36
3) $18\sqrt{2}$
4) $36\sqrt{2}$

9 Find, in radical form, the area of $\triangle ABC$ if $a = 6$, $b = 6$, and m$\angle C = 45$.

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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Answer Section

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

$9\sqrt{2}$

    REF: 069812siii
10 ANS: 1   REF: 080120siii