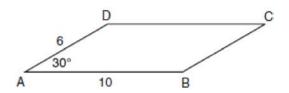
Regents Exam Questions G.SRT.D.9: Using Trigonometry to Find Area 5 www.jmap.org

G.SRT.D.9: Using Trigonometry to Find Area 5

- 1 An obtuse angle of a parallelogram has a measure of 150°. If the sides of the parallelogram measure 10 and 12 centimeters, what is the area of the parallelogram?
 - 1) 30 cm^2
 - 2) 60 cm^2
 - 3) $60\sqrt{2}$ cm²
 - 4) $60\sqrt{3}$ cm²
- 2 The sides of a parallelogram are 6 and 8, and the included angle is 150°. What is the area of the parallelogram?
 - 1) 24
 - 2) 48
 - 3) $24\sqrt{3}$
 - 4) $48\sqrt{2}$
- 3 What is the area of a parallelogram if two adjacent sides measure 4 and 5 and an included angle measures 60°?
 - 1) $5\sqrt{2}$
 - 2) $10\sqrt{2}$
 - 3) $5\sqrt{3}$
 - 4) $10\sqrt{3}$
- 4 What is the area of parallelogram *ABCD* if AB = 4, $AD = 5\sqrt{3}$, and m $\angle A = 60$?
 - 1) 15
 - 2) 30
 - 3) $5\sqrt{3}$
 - 4) $10\sqrt{3}$
- 5 What is the area of a parallelogram that has sides measuring 8 cm and 12 cm and includes an angle of 120°?
 - 1) $24\sqrt{3}$
 - 2) $48\sqrt{3}$
 - 3) $83\sqrt{3}$
 - 4) $96\sqrt{3}$

- 6 The sides of a parallelogram measure 10 cm and 18 cm. One angle of the parallelogram measures 46 degrees. What is the area of the parallelogram, to the *nearest square centimeter*?
 - 1) 65
 - 2) 125
 - 3) 129
 - 4) 162
- 7 In the accompanying diagram of parallelogram ABCD, m $\angle A = 30$, AB = 10, and AD = 6. What is the area of parallelogram ABCD?



- 8 Two sides of a parallelogram are 24 feet and 30 feet. The measure of the angle between these sides is 57°. Find the area of the parallelogram, to the *nearest square foot*.
- 9 The two sides and included angle of a parallelogram are 18, 22, and 60°. Find its exact area in simplest form.
- 10 Find, to the *nearest tenth of a square foot*, the area of a rhombus that has a side of 6 feet and an angle of 50° .
- 11 The area of a parallelogram is 594, and the lengths of its sides are 32 and 46. Determine, to the *nearest tenth of a degree*, the measure of the acute angle of the parallelogram.

Name: ____

G.SRT.D.9: Using Trigonometry to Find Area 5 Answer Section

1 ANS: 2 REF: 019734siii 2 ANS: 1 REF: 060231siii 3 ANS: 4 REF: 089733siii 4 ANS: 2 $A = 4 \cdot 5\sqrt{3} \sin 60 = 20\sqrt{3} \cdot \frac{\sqrt{3}}{2} = 30$ REF: 011713a2 5 ANS: 2 $K = 8 \cdot 12 \sin 120 = 96 \cdot \frac{\sqrt{3}}{2} = 48\sqrt{3}$ REF: 061508a2 6 ANS: 3 $K = (10)(18) \sin 46 \approx 129$ REF: 081021a2 7 ANS: 30. $K = (10)(6) \sin 30^\circ = 30$ REF: 010924b 8 ANS: $K = ab\sin C = 24 \cdot 30\sin 57 \approx 604$ REF: 061034a2 9 ANS: $K = ab\sin C = 18 \cdot 22\sin 60 = 396\frac{\sqrt{3}}{2} = 198\sqrt{3}$ REF: 061234a2 10 ANS: $K = ab\sin C = 6 \cdot 6\sin 50 \approx 27.6$ REF: 011429a2 11 ANS: $594 = 32 \cdot 46 \sin C$ $\frac{594}{1472} = \sin C$ $23.8 \approx C$ REF: 011535a2