

Name: _____

Date: _____

Period: _____

Chapter 10: Applying Trig Functions
Topic 4: Area of a Triangle and Parallelogram

Reference Sheet Formula for Area of a Triangle:

Pattern:

Example:

In $\triangle ABC$, $a = 8$, $b = 12$, and $m\angle C = 140^\circ$. Find the area to the nearest square unit.

Formula for the Area of a Parallelogram:

(Includes Rhombus)

Pattern:

Note: This formula is NOT on the reference sheet! Remember, a parallelogram is just two congruent triangles joined together.

Example:

The lengths of two sides of a parallelogram are 24 and 36 cm. Their included angle measures 50° . Find the area of the parallelogram to the nearest tenth.

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Draw diagrams, write formulas, and show all work in your binder.

Examples:

1. In an isosceles Δ , the two equal sides each measure 24 meters, and they include an angle of 30° . Find the area of the isosceles triangle, to the nearest sq. meter.
2. In triangle ABC, $AB = 12$ meters and $AC = 20$ meters. If the area of the triangle is 77 sq. meters, find the measure of $\angle A$, to the nearest degree.
3. In ΔDEF , $e = 10$, $f = 8$, and $m\angle D = 60^\circ$. Find the EXACT area.
4. In ΔPQR , $q = 15$ and $r = 60$. Find the measure of $\angle P$, to the nearest degree, if the area is 240 square units.
5. A triangle has two sides of 30 meters and 26 meters, and the angle between them is an obtuse angle. If the area of the triangle is 300 sq. meters, find the measure of the obtuse angle (to the nearest degree.)
6. In a rhombus, each side is 15, and one angle is 130° . Find the area of the rhombus, to the nearest square unit.
7. A farmer has a triangular field where two sides measure 450 yards and 320 yards. The angle between these two sides measures 80° . The farmer wishes to use an insecticide that costs \$4.50 per 100 sq. yards or any part of 100 yds. What will it cost to use this insecticide on this field?
8. The Art Guild is painting a mural in the shape of an isosceles triangle on their building at the State Fair. The equal sides of the triangle will each be 12 yards in length, and the area of the triangular mural will be 55 square yds. Find the measure of the three angles of the triangle, to the nearest hundredth of a degree.
9. Samuel has decided to use stamped concrete for his backyard patio. He has chosen to make his design out of parallelograms and has designed the parallelogram pattern shown below. Find the area of Samuel's design, to the nearest tenth of a square foot.

