

Unit 7: Angles, Triangles, and Prisms

ADVANCED

Name: _____ Date: _____

Show all your work. Give each answer as an exact value with correct units where they apply.

1. Two angles are supplementary. The larger angle is 15° less than 4 times the smaller angle. Find the measure of the larger angle, in degrees.

Answer: _____

3. The three interior angles of a triangle measure $(3x - 10)^\circ$, $(2x + 15)^\circ$, and $(x + 25)^\circ$. Find the measure of the LARGEST of the three angles, in degrees.

Answer: _____

5. Two complementary angles are in the ratio 3 : 7. Find the measure of the larger angle, in degrees.

Answer: _____

7. An isosceles triangle has two equal base angles each measuring $(4x - 5)^\circ$ and a vertex angle measuring $(2x + 20)^\circ$. Find the measure of the vertex angle, in degrees.

Answer: _____

9. A triangular prism has a triangular cross-section with base 9 cm and height 6 cm. The prism is 14 cm long. Find its volume in cubic centimeters (cm^3).

Answer: _____

2. Two vertical angles have measures $(7x + 5)^\circ$ and $(9x - 25)^\circ$. Solve for x , then give the measure of one of these angles, in degrees.

Answer: _____

4. In a triangle, an exterior angle measures 125° . Its two remote interior angles measure $(2x + 5)^\circ$ and $(3x)^\circ$. Find the value of x .

Answer: _____

6. Parallel lines are cut by a transversal. Two co-interior (same-side interior) angles measure $(5x - 12)^\circ$ and $(3x + 40)^\circ$. Find the value of x .

Answer: _____

8. Find the area of a triangle with base 17.5 cm and height 12.4 cm. Give the area in square centimeters (cm^2).

Answer: _____

10. Find the total surface area of a rectangular prism measuring 8.5 cm by 6 cm by 4.5 cm. Give the surface area in square centimeters (cm^2).

Answer: _____

11. A prism has a trapezoid cross-section whose parallel sides are 10 cm and 6 cm and whose height is 4 cm. The prism is 15 cm long. Find its volume in cubic centimeters (cm^3).

Answer: _____

12. A triangular prism has a right-triangle cross-section with legs 6 cm and 8 cm (hypotenuse 10 cm) and a length of 12 cm. Find its total surface area in square centimeters (cm^2).

Answer: _____