

Unit 7: Angles, Triangles, and Prisms

ADVANCED · SET 2

Name: _____ Date: _____

Solve each problem. Show your work on scratch paper and write your final answer in the box.

1. Two angles are supplementary. The larger angle measures 24° more than three times the smaller angle. Find the measure of the larger angle in degrees.

Answer: _____

3. Angle A and angle B are complementary. Angle A is 15° less than twice angle B. Find the measure of angle A in degrees.

Answer: _____

5. A triangle has two known angles of 47° and 68° . An exterior angle is formed at the third vertex. Find the measure of that exterior angle in degrees.

Answer: _____

7. A prism has a trapezoidal cross-section with parallel sides 8 cm and 14 cm and a height between them of 6 cm. The prism is 25 cm long. Find the volume in cubic centimeters.

Answer: _____

9. Three angles lie on a straight line. Their measures are $(3x)^\circ$, $(2x + 10)^\circ$, and $(x - 4)^\circ$. Find the value of x.

Answer: _____

2. In a triangle, the three angles are in the ratio 2 : 5 : 8. Find the measure of the largest angle in degrees.

Answer: _____

4. Two angles are vertical angles. One is expressed as $(5x + 12)^\circ$ and the other as $(7x - 20)^\circ$. Find the value of x.

Answer: _____

6. A right triangular prism has a triangular base that is a right triangle with legs 9 cm and 12 cm (hypotenuse 15 cm). The prism's length is 20 cm. Find the total surface area in square centimeters.

Answer: _____

8. The volume of a triangular prism is 540 cubic inches. Its triangular base has an area of 18 square inches. Find the length of the prism in inches.

Answer: _____

10. A rectangular prism measures 13 cm by 8 cm by 5 cm. Find its surface area in square centimeters.

Answer: _____

11. In a triangle, the second angle is 10° more than the first, and the third angle is twice the first. Find the measure of the third angle in degrees.

Answer: _____

12. A cube has a surface area of 294 square meters. Find its volume in cubic meters.

Answer: _____