

Problem Solving with Exponentials

Example

The area of a rectangular housing lot is 864 m^2 . If the width of the lot is $\frac{2}{3}$ the length, what are the dimensions of the lot?

The Math	The Steps
	<ol style="list-style-type: none"><li data-bbox="824 569 1341 642">1. Draw a representative diagram of the situation.<li data-bbox="824 795 1370 869">2. Choose an appropriate formula to solve the problem.<li data-bbox="824 1022 1305 1146">3. Write an equation that relates one dimension in terms of another.* *May need to be repeated<li data-bbox="824 1299 1317 1423">4. Substitute all known values and expressions into the formula to get an equation in only one variable.<li data-bbox="824 1577 1333 1650">5. Solve the equation for the remaining variable.<li data-bbox="824 1803 1414 1877">6. Use your equation(s) from #3 to determine any missing dimensions.

Try It!

The area of a triangle is 54 cm^2 . If the base of the triangle is $\frac{1}{3}$ the height, what are the dimensions of the triangle?

Consolidation Questions

1. A propane storage tank consists of two hemispheres attached to the ends of a cylinder. The length of the cylindrical part is equal to the diameter of the hemispherical ends. If the tank holds $10\,000 \text{ m}^3$ of propane, what are the dimensions of the tank?
2. The fuel consumption of a particular make of small car is related to the car's speed by the equation: $F = 6.0 + 0.001(v - 90)^3$ where F is the fuel consumption in L/100 km and v is the average speed in km/h. The formula is only valid for speed in excess of 90 km/h. If this car is consuming 7.2 L/100km what is its average speed?