

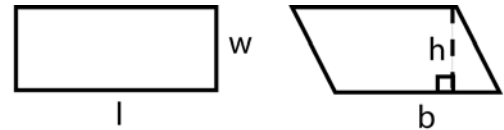
Knowing a general formula can take us a long way toward solving a problem.

Elementary algebra
Class notes
Formulas and Problem Solving (section 9.5)

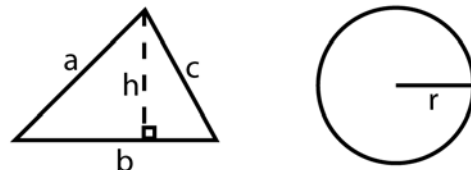
Common Formulas:

Become familiar with the following formulas. Try to fill in the formulas from memory. Others will be given to you in specific problems.

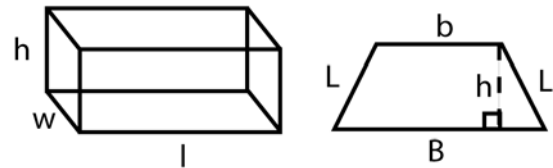
Area of a rectangle A with width w and length l :



Perimeter of a rectangle P with width w and length l :



Area of a triangle A with base b and height h :



Perimeter of a triangle P with sides a , b , and c :

Volume of a box V with length l , width w , and height h :

Circumference of a circle C with radius r :

Area of a circle A with radius r :

Distance traveled d given rate r and time t :

Area of a parallelogram A with height h and base b :

Fahrenheit temperature F given Celsius temperature reading C :

Area of a trapezoid A with bases (parallel sides) b and B and height h :

Simple interest earned I after depositing P dollars at an interest rate R (in decimal form) for time T :

Perimeter of a trapezoid P with bases (parallel sides) b and B and sides of length L :

Solving Formulas for a Variable:

expl 1: Solve $P = 2l + 2w$ for w .

We say the equation is
"solved for P " now.

Isolate w . Think of how
you would solve
 $14 = 6 + 2w$.

Using Formulas:

expl 2: Substitute the given values and solve for the unknown variable.

$$I = PRT$$

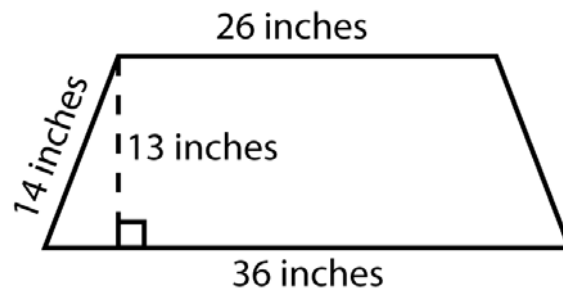
$$I = 4,200,000$$

$$R = .07$$

$$T = 4$$

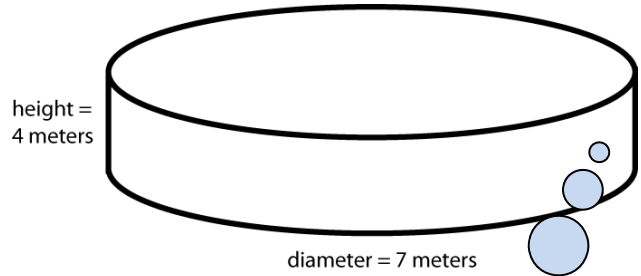
expl 3: Use the shape shown to the right.

- a.) Find the area and perimeter of the trapezoid. Include units.



- b.) If this were a room that needed carpeting, would we need its area or perimeter?

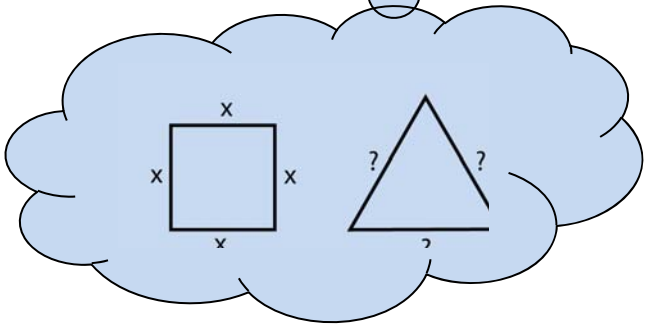
expl 4: Each fish in a tank needs 2 cubic meters of water. A large circular fish tank is shown here. How many fish can be kept in the tank?



Don't know the volume of a cylinder? How does the volume formula of a box lead you to the formula you need?

expl 5: A square animal pen and a pen shaped like an equilateral triangle have the same perimeter. Find the lengths of the sides of each pen if the sides of the triangular pen are 15 feet less than twice the side of the square pen.

Let x = side of square pen (in feet)



expl 6: Room temperature is 78 degrees Fahrenheit. Convert this to Celsius.

Which formula will you use?

$$F = \frac{9}{5}C + 32$$
$$F = 1.8C + 32$$
$$C = \frac{5F - 160}{9}$$

} all equivalent

expl 7: Mike and Joe are going to drive to Miami, Florida from St. Louis, Missouri. Their route will be a total of 1216 miles. If they average 65 miles an hour, how long will it take for them to drive to Miami? Round your answer to the nearest tenth. Include units.

Keep straight what the variables represent. Write them all down along with the implied equation.