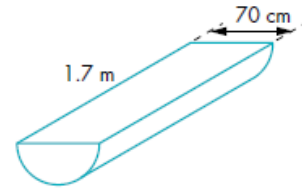


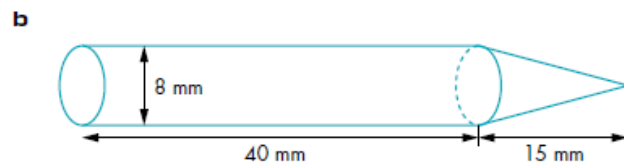
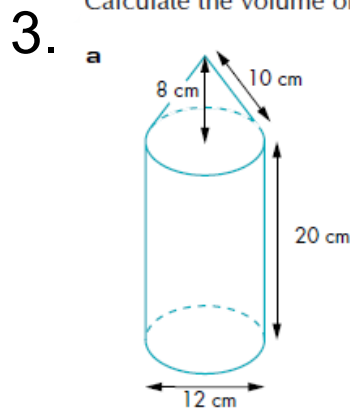
1. a) Calculate the total perimeter of each of these sectors.  
 b) Calculate the area



2. A horse trough is in the shape of a semicircular prism as shown. What volume of water will the trough hold when it is filled to the top? Give your answer in litres.

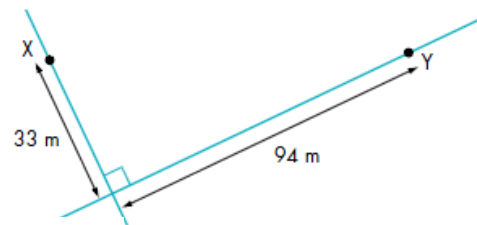


3. Calculate the volume of each of these shapes. Give your answers in terms of  $\pi$ .

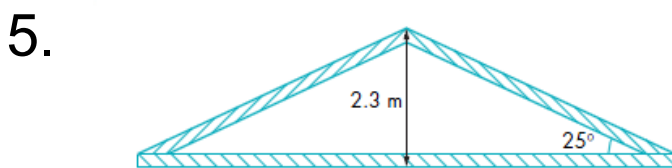


4. Some pedestrians want to get from point X on one road to point Y on another. The two roads meet at right angles.

- a If they follow the roads, how far will they walk?  
 b Instead of walking along the road, they take the shortcut, XY. Find the length of the shortcut.  
 c How much distance do they save?



This diagram below shows a roof truss. How wide is the roof?



Calculate the size of the interior angle of regular polygons with these numbers of sides.

6. a 12 sides      b 20 sides      c 9 sides      d 60 sides

7. Solve the following equations.

a  $\frac{x+1}{2} + \frac{x+2}{5} = 3$

b  $\frac{x+2}{4} + \frac{x+1}{7} = 3$

c  $\frac{3}{4x+1} - \frac{4}{x+2} = 2$

d  $\frac{2}{2x-1} - \frac{6}{x+1} = 11$

8. Simplify the following expressions.

a  $\frac{x^2 + 2x - 3}{2x^2 + 7x + 3}$

b  $\frac{4x^2 - 1}{2x^2 + 5x - 3}$

c  $\frac{6x^2 + x - 2}{9x^2 - 4}$

d  $\frac{4x^2 + x - 3}{4x^2 - 7x + 3}$

e  $\frac{4x^2 - 25}{8x^2 - 22x + 5}$

You will need to factorise top and bottom to do this. (Monday's Lesson)