# Perimeter, Area & Volume

**Lesson 8**

*Non Calculator*

**8.1 TEST**

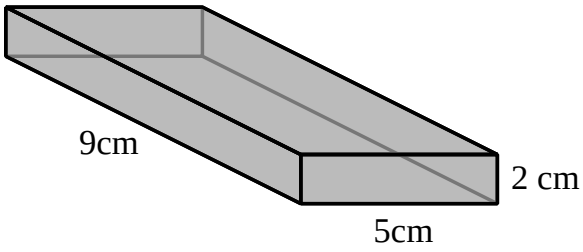
**Question 1**

Calculate the following without using a calculator.
In each case, look for an easiest way to perform the mental calculation.

**( i )** $10 \times 7 \times 3$ **( ii )** $4 \times 3 \times 11$

**( iii )** $17 \times 2 \times 5$ **( iv )** $13 \times 25 \times 4$

**Question 2**




Calculate the volume of this cuboid.

***HINT*** **:** *Volume = length × breadth × height*

**Question 3**

Expand the brackets;

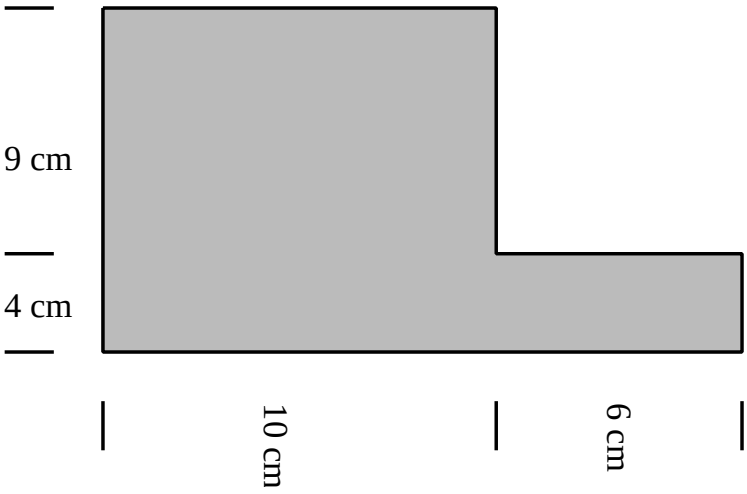
$$(x + 5)(x + 4)$$

**Question 4**
Fill in the missing word:

The perimeter of a shape is the _____ around the outside of the shape.

**Question 5**
Calculate the **PERIMETER** of the following shape

SHOW YOUR WORKING



**Question 6**

Expand the brackets;

$$(x - 7)(x + 5)$$

**Question 7**

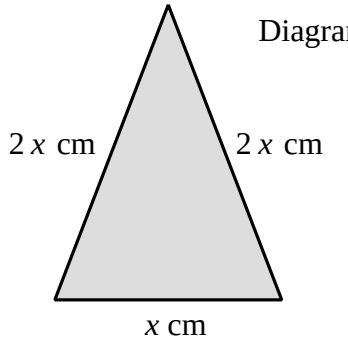
Solve these equations without using a calculator;

**( i )** $8x + 1 = 5$ **( ii )** $3 + 5x = 17$

**Question 8**

*GCSE Examination Question from November 2007, 3H, Q3*

A triangle has two equal sides of length $2x$ cm and one side of length $x$ cm.



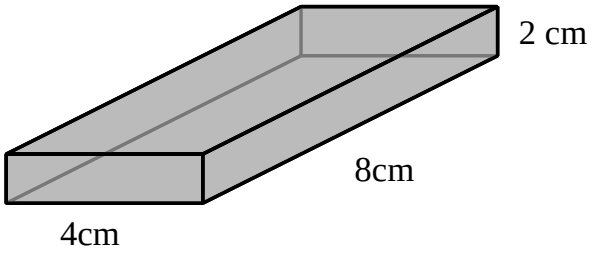

The perimeter of this triangle is 12 cm.

**( i )** Use this information to write down an equation in $x$.

**( ii )** Solve your equation to find the value of $x$.

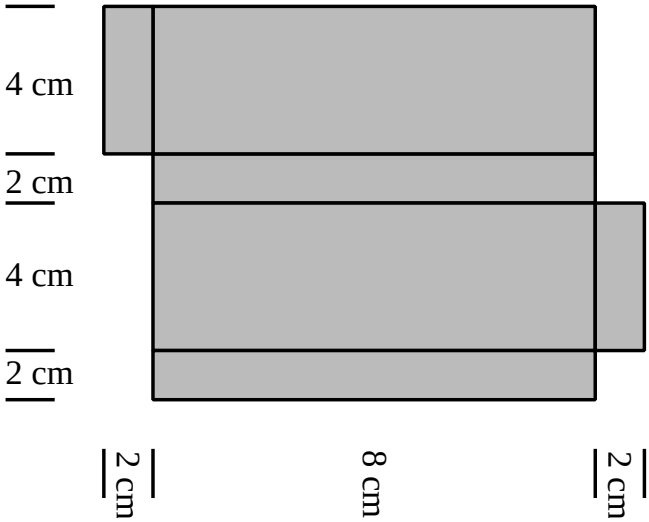
**[ 3 marks ]**

**Question 9**




Work out the surface area of this cuboid.

Use the net below to help you show the working involved.



**Question 10**

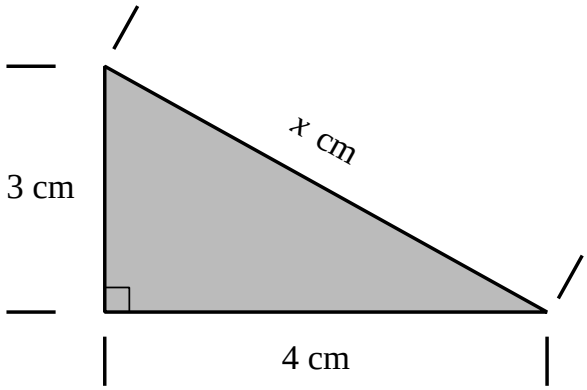
**( a )** Write down the value of $3^2$

**( b )** Write down the value of $4^2$

**( c )** Write down the value of $3^2 + 4^2$

**( d )** Write down the value of $\sqrt{3^2 + 4^2}$

**( e )** Consider the triangle shown below;




A famous theorem says that the length marked $x$ cm will be;

$$x = \sqrt{3^2 + 4^2}$$

What is the name of this famous theorem ?

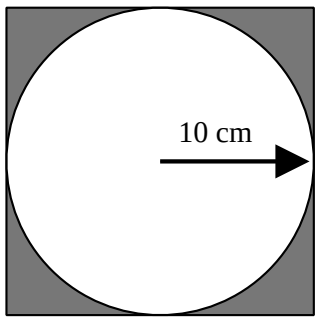
**( f )** Calculate the PERIMETER of this triangle.

**Question 11**

$$Area\ \mathrm{O} = \pi r^2 \qquad where\ \pi\ is\ about\ 3.14$$

**( a )** Work out the area of a circle of radius 10 cm.

**( b )** The diagram shows a circle of radius 10 cm inside a square.
Work out the area shown shaded.



**Question 12**

Expand the brackets

$$( 5x + 8 ) ( 3x + 7 )$$

**Question 13**

A rectangle has a length, in cm, of $x + 7$ and a height of 6 cm.
It has a perimeter is 32 cm.

**( i )** Calculate the value of $x$.

**( ii )** Draw the rectangle full size.

**( iii )** What is the area of the rectangle ?

**Question 14**

Expand the brackets

$$( 2x + 9 ) ( 5x - 6 )$$

**Question 15**

*GCSE Examination Question from June 2010, 4H, Q7*

Rectangular tiles have width $( x + 1 )$ cm and height $( 5x - 2 )$ cm.

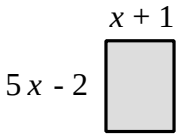



Diagram NOT accurately drawn

Some of these tiles are used to form a large rectangle.
The large rectangle is 7 tiles wide and 3 tiles high.

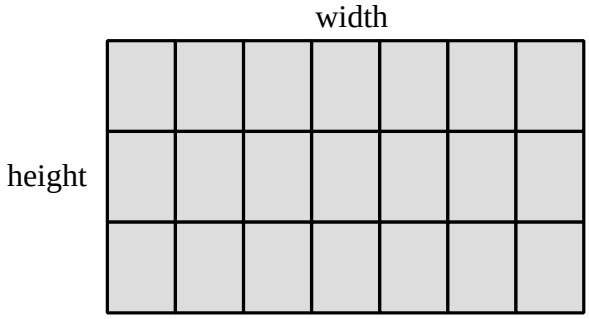



Diagram NOT accurately drawn

The perimeter of the large rectangle is 68 cm.

**( a )** Write down an equation in $x$.

**[ 3 marks ]**

**( b )** Solve this equation to find the value of $x$.

**[ 3 marks ]**

**Question 16**

Expand the brackets

$$(3x + 5)^2$$