

Problem Solving GCSE Questions 4

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(1) A and B are both integers.

The highest common factor

of A and B is 2.

96 is a multiple of both A and B .

$A \div B$ is a non-integer.

$B \div A$ is a non-integer.

Find possible values for A and B .

(2) In a school the ratio of boys to girls in year 7 is 5:6.

In year 7 the ratio of boys preferring rugby to the boys preferring football is 4:11.

Given that there 198 pupils in year 7, find out how many boys in year 7 preferred football to rugby.

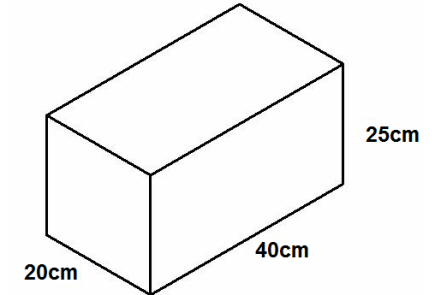
(3) A tank is two thirds full and currently holds 40lt of water.

The tank is emptied completely before being filled at the rate of 200ml per minute.

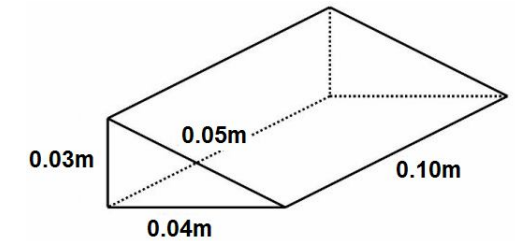
How long will the tank take to fill completely from empty?

You must give your answer in hours.

(4) The cuboid shown below is made of solid gold.



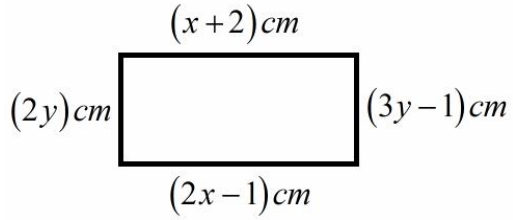
The gold will be melted down to make solid right triangular gold wedges as shown below.



What is the maximum number of gold wedges that can be made from the cuboid?

(You can assume there will be no wastage in the process of making the wedges).

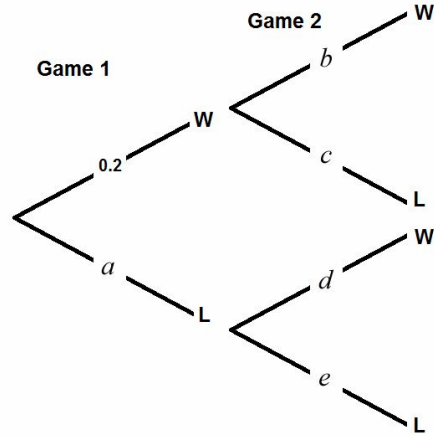
(5) Find the area of the rectangle below.



You must give your answer in m^2 .

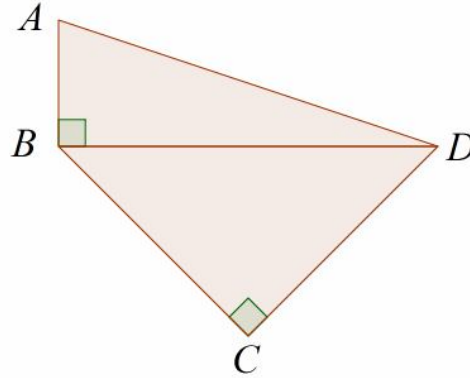
(6) Sergio is playing on the computer. He plays two different games, Game 1 and Game 2.

The two events are independent. The tree diagram shows some of the information below.



Given that the probability of Sergio losing both games is $12/25$, find the values of a, b, c, d and e .

(7) $ABCD$ is a quadrilateral.



BCD is a right angled isosceles triangle.

$CD = 5cm$

$AD = 8cm$

Find the area of $ABCD$ giving your answer to one decimal place.

(8) Bob has 3 different spinners. Each spinner has 4 different numbers on it. He spins each spinner once and records the number obtained. Find the probability that all 3 numbers obtained are prime numbers.

Spinner 1

Number	1	2	10	11
Probability	$2x$	$4x$	$3x$	x

Spinner 2

Number	5	6	18	19
Probability	y	y	0.7	$4y$

Spinner 3

Number	3	4	8	9
Probability	z	z	z	z