Problem Solving GCSE Questions 11
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(1) Rock 1 has a mass of 320g and a volume of 512cm³. Rock 2 has two thirds of the mass of Rock 1 yet has twice its volume. Find the difference in the density of the two rocks.
Give your answer to 3 significant figures

(2) A square metre has two of its side lengths decreased by 1cm and two of its side lengths increased by 3cm to make a rectangle.
Find the percentage change in the area of the shape after the alterations.

(3) Sue has £5000 to invest and wants to put the money into a savings account for 4 years.
Sue has the following 3 options:

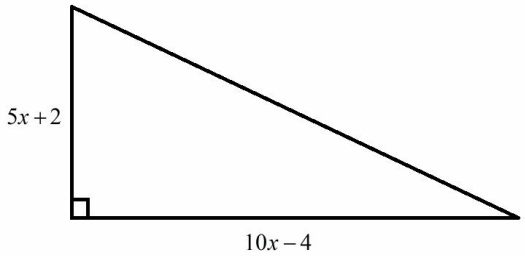
Option 1
Simple interest paid at 5% per annum.

Option 2
Compound interest paid at 4.5% per annum.

Option 3
A lump sum of 9% of the original investment paid at the end of the 4 years.

Advise Sue on which option she should take if she wants the greatest amount of money at the end of the 4 years.

(4) Show that the area of the triangle below can be written in the form $ax^2 - b$.

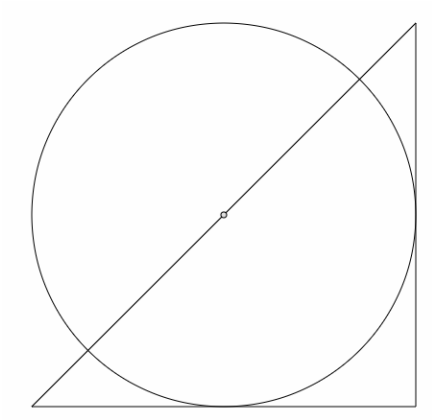


(5) The diagram below shows an isosceles triangle and a circle.

The hypotenuse of the triangle passes through the centre of the circle.

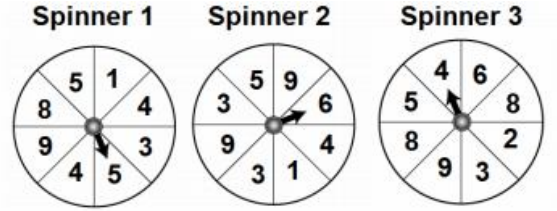
The two shorter sides of the triangle are tangents to the circle

The area of the isosceles triangle is $50u^2$.



Find the circumference of the circle.

(6) The 3 spinners below are each spun once and the number written down.



Find the probability that when the three spinners are spun the numbers are either all prime numbers **or** all cube numbers.

(7) An equilateral triangle has a perimeter of 12cm. find the area of the triangle.

(8) Fred travels on a bearing of 120º for 8km.
Fred then travels north for 4km.
Show that he is directly east of his starting point.