DEPARTMENT OF MATHEMATICS
## PROBLEM SOLVING CHALLENGE

Q1.   *Junior Cycle*

(a) **500 tickets numbered 1 to 500 are sold for a raffle.**
     What is the probability that the winning ticket has a number greater than 350?
     Explain why the probability that a male has the winning ticket may not be $\frac{1}{2}$

(b) **A pile of gold dust is divided among three prospectors. Calamity Jane and Wild Bill get $\frac{2}{5}$ and $\frac{1}{4}$ of the dust respectively. Nugget Smith gets the remaining 14 grams. How many grams does Calamity and Wild Bill each get?**

Q2.   *Senior Cycle*

The diagram shows part of the specification diagram for a metal washer. The line segment DC is 36 mm long. Find the area of the annulus (shaded region).
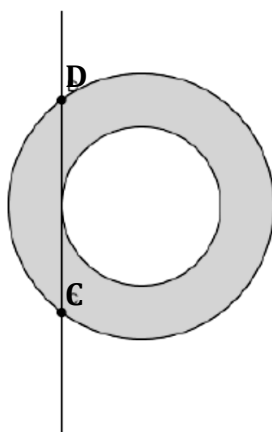
If the washer is 0.1 mm thick find the volume of metal in the washer.
If $1\ cm^3$ of the metal has mass 5g, find the mass of the washer.
If the material from which the washer is to be manufactured costs €250.00 per tonne, find the cost of manufacturing 120,000 washers

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Answers on an A4 sheet with your __Name__, __Year__ and __Class__ should be handed into the box in the office before 4pm on Friday 27th of February

Monthly Prize for both Junior and Senior Cycle.*

Good Luck.

Junior Cycle students answer question 1 only.   *Senior Cycle students answer question 2 only*