Sept 2018

Department of Mathematics

Problem Solving Challenge

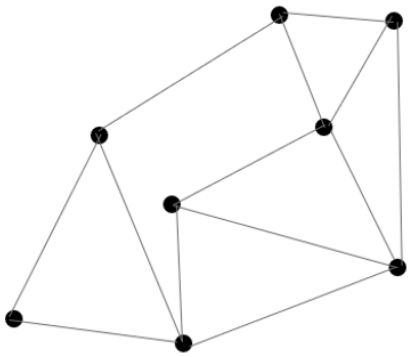
Q1. *Junior Cycle*

The shape below is made up of vertices (dots) and edges (lines).

(i) What is the maximum number of edges you can remove from the shape so that all the vertices remain connected.

(ii) Draw your answer from part (i)

(iii) A different shape has 14 vertices. What is the least amount of edges this graph can have if all the vertices remain connected.



Q2. *Senior Cycle*

There is a set of 12 apples. Each apple weighs exactly the same weight apart from one. This apple is either slightly heavier or lighter than the other apples. You can only use the given weighing scales three times. Explain how you can determine which of the apples is the odd one out using the scales.

Answers on an A4 sheet with your Name, Year and Class should be given to Mr. McManus or to Mr. McEvoy in room 33 before 4pm on Friday 28th of September.

Monthly Prize for both Junior and Senior Cycle.*

Good Luck.

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