

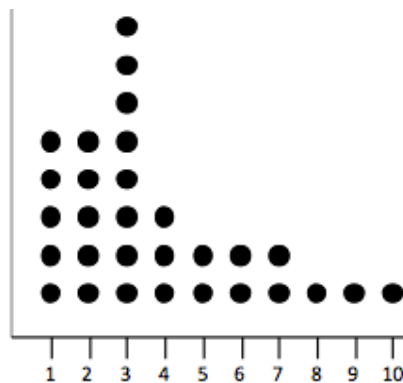
MARCH
2016

DEPARTMENT OF MATHEMATICS

PROBLEM SOLVING CHALLENGE

- Q1.** The diagram below shows the number of employees plotted against their length of service with a given company. The vertical axis indicates the number of employees but the scale was accidentally omitted from this graph. What percent of the company's employees have worked there for 5 years or more?

Junior Cycle



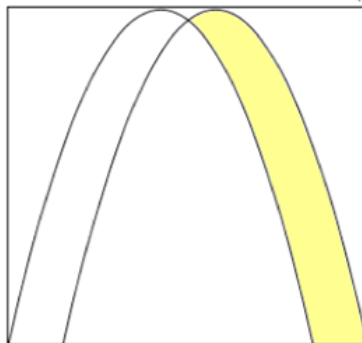
No of years with the company

- Q2.** Two functions are defined as follows:

Senior Cycle

$$f(x) = (3 + x)(2 - x) \text{ and } g(x) = (3 - x)(2 + x).$$

- (i) Show that the graphs of these two functions have a common point on the y-axis.
- (ii) A company wants to use the logo shown above and decides to base it on these two functions. The shaded region is that part of the positive quadrant which is bounded by the two functions and the section of the x-axis from (2, 0) to (3, 0). Calculate this shaded area.



Answers on an A4 sheet with your Name, Year and Class should be handed into the office or given to Mr. McEvoy before 4pm on Friday 25th of March

Monthly Prize for both *Junior* and *Senior* Cycle.*

Good Luck.

Junior Cycle students answer question 1 only.

Senior Cycle students answer question 2 only