

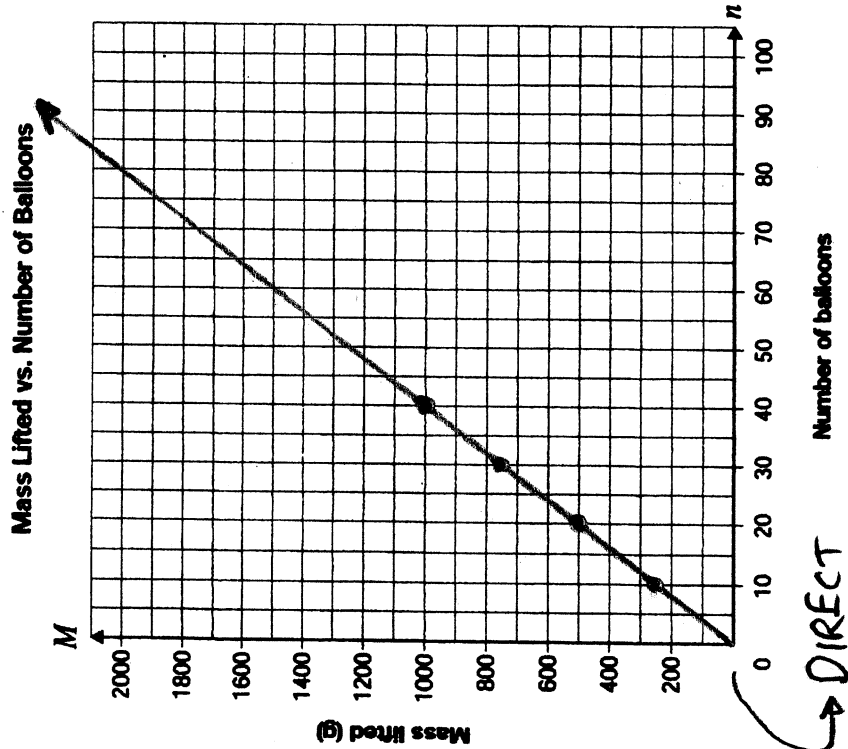
MFEM 1PI

Open Response Examples

1. The Clown Factor is a competition in which clowns do circus stunts to try to become the best clown. In one event, the clowns tie helium balloons to objects to make them float. The data below represents the relationship between the mass lifted, M , in grams and the number of balloons, n , needed to lift the mass.

Number of balloons, n	Mass lifted, M (g)
10	250
20	500
30	750
40	1000

- a) Plot this data on the grid below:



- b) Determine the number of balloons needed to lift a mass of 1400 g. Justify your answer.

56 balloons → if I go to 1400g on the 'M' axis, go right to the line & go down to the 'n' axis I read just above 55 balloons

- c) How will the graph change if the experiment is repeated with larger balloons that lift greater masses? Justify your answer.

The graph would be steeper (have a larger slope)

for example: 10 balloons would lift more than 250 grams, say 400 grams. This would form a steeper line

- d) Explain how to find the mass that can be lifted if you know the number of balloons.

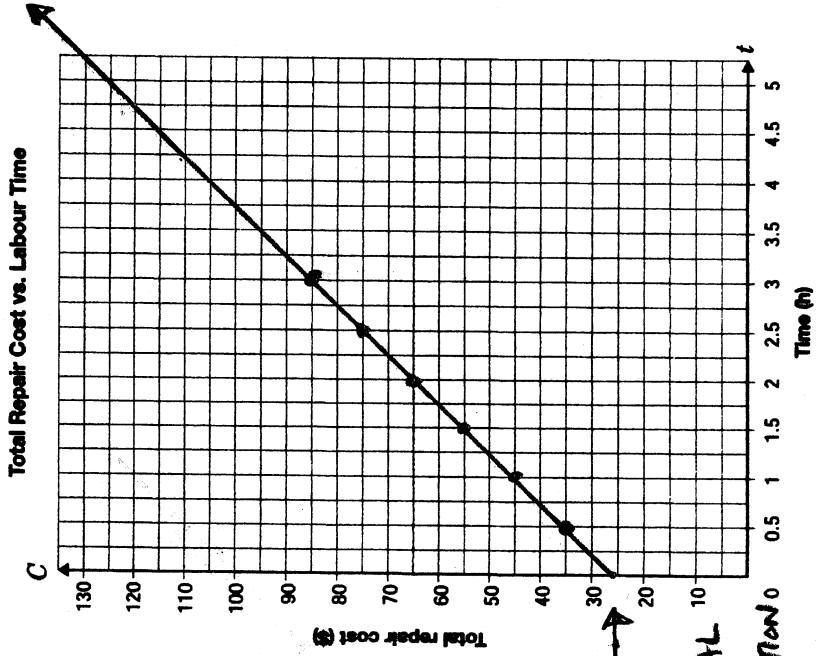
go to the number of balloons on the 'n' axis, go up to the line, then go left to the 'M' axis and read the mass that will lift 'n' balloons

2. Gurshaarn takes his broken computer to Rapid Repair. At Rapid Repair the total repair cost includes a fixed cost of \$25 plus \$20/h for labour.

- a) Complete the table below to show the relationship between total repair cost, C, in dollars, and time, t, in hours.

Time, t (h)	Total repair cost, C (\$)
0.5	$25 + 20(0.5) = 35$
1	$25 + 20(1) = 45$
1.5	$25 + 20(1.5) = 55$
2	$25 + 20(2) = 65$
2.5	$25 + 20(2.5) = 75$
3	$25 + 20(3) = 85$

- b) Construct a graph below



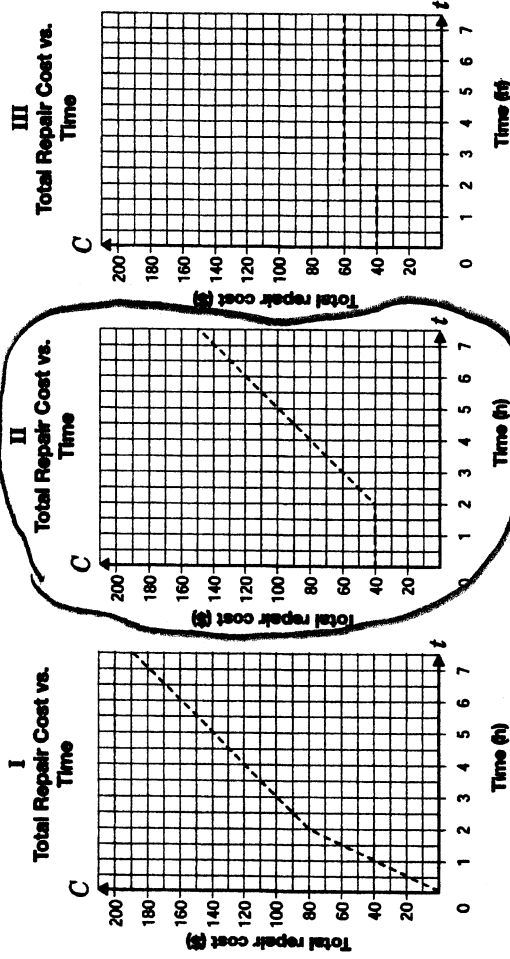
25 →
 PARTIAL
 VARIATION
 (DOES NOT START AT
 ZERO!)

- c) Determine the time if the total cost of the repair is \$125.00. Justify your answer.

5 hours → go to \$125 on the 'C' axis, go right to the line, go down to the t-axis & I read 5 hours

- d) A different company charges a flat rate for up to 2 h of repair on any computer. After this, an hourly rate is applied.

Circle the graph (I, II or III) that represents this relationship.



Justify your choice of graph.

A flat rate for 2 hours would be a flat line (has zero slope) for the first two hours, so it could be graph II or III. Graph III is a flat rate after 2 hours. So it must be graph II.