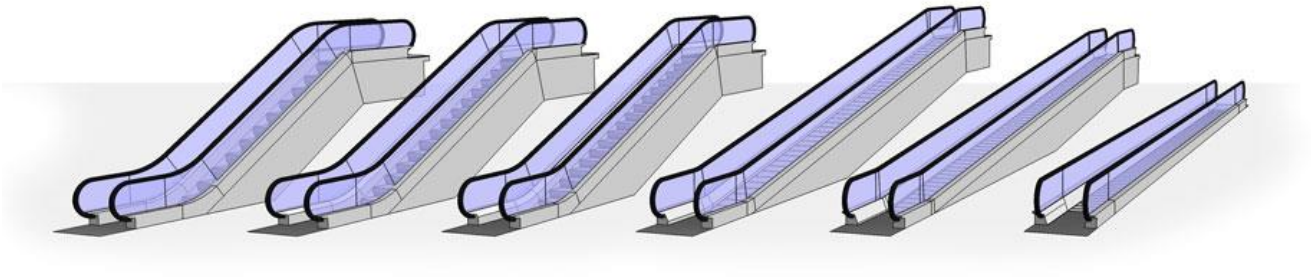
Engineering Unit 1 (BTEC Level 3 Engineering) Summer Homework

The questions are set in the context of installation and repair of moving walkway travellators.

Attempt each question and show your working clearly. You may need to use extra sheets of paper.

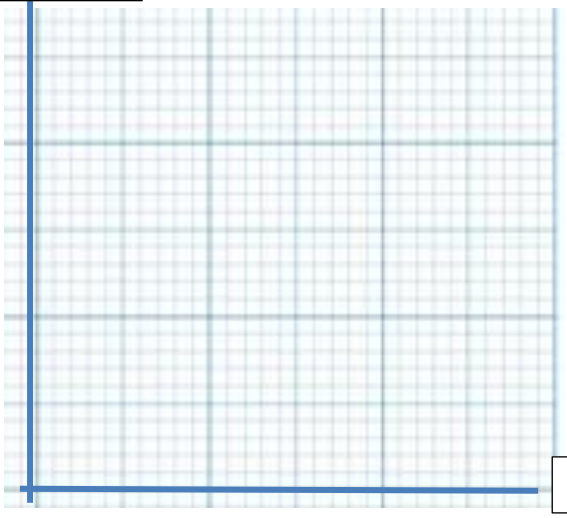


Question 1: The table below shows the height of a travellator hand rail at different points along its length.

Distance (m)	0	2	5	7	10
Height (m)	0.3	0.7	1.3	1.7	2.3

Use the information to plot a graph of Distance (Horizontal axis) and Height (vertical axis).

Height (m)



Distance (m)

- What is the height when the distance is 4m?
- What is the gradient of the graph?
- What is the intercept of the graph?
- What is the equation that links Height and Distance?

Height = _____ x Distance + _____

Question 2:

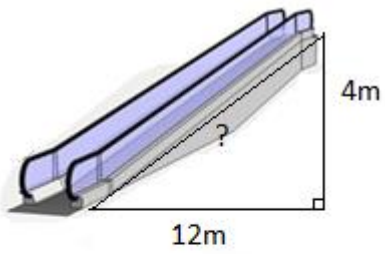
One travellator (going up a slope) has an equation of h = 0.5 + 0.2d

Another travellator has (going down a slope) has an equation of h = 4 – 0.3d

- **At what distance will the travellators have the same height?**
- **At what height will they cross?**

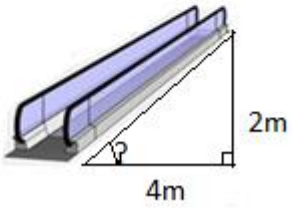
Explain clearly how you found your answers

Question 3:



- **Calculate the missing length marked with ?**

Show clearly how you found your answer.



- **Calculate the missing angle marked with ?**

Show clearly how you found your answer.

Question 4:

The speed of a travellator after it has been switched on is given by the function

$s = 3(1 - 0.7^t)$ $(when\ the\ time\ is\ greater\ than\ zero)$

Where s=speed in m/s and t=time in seconds after the travellator is switched on.

Complete the table using the function above

Time (s)	0	1	2	3	4	5	6	7	8
Speed (m/s)			1.53				2.647		

Plot a graph of time (horizontal axis) against speed (vertical axis) - you will need to draw your own axes!

Describe what happens to the speed.