Past Paper Questions – Uses of graphs

4. The diagram shows four empty containers.

A   B   C   D

Water is poured at a constant rate into each of these containers.

![Graphs](image)

Each sketch graph shows the relationship between the height of water in a container and the time as the water is poured in.

Write the letter of each graph in the correct place in the table.

<table>
<thead>
<tr>
<th>Container</th>
<th>Graph</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
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<tr>
<td>B</td>
<td></td>
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<tr>
<td>C</td>
<td></td>
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<tr>
<td>D</td>
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</tbody>
</table>

(Total 3 marks)
21. Here is a velocity-time graph for 60 seconds of a motor cyclist's journey.

(a) Calculate an estimate for the acceleration of the motor cyclist after 25 seconds.

.................. m/s²
(3)
The diagram shows a water tank. The tank is a hollow cylinder joined to a hollow hemisphere at the top. The tank has a circular base.

The empty tank is slowly filled with water.

(a) On the axes, sketch a graph to show the relation between
the volume, $V \text{ cm}^3$, of water in the tank
and
the depth, $d \text{ cm}$, of water in the tank.
15. Here is a velocity/time graph for the first 6 seconds of the movement of an object.

Velocity (m/s)

(a) Calculate an estimate for the object's acceleration at 1\(\frac{1}{2}\) seconds.