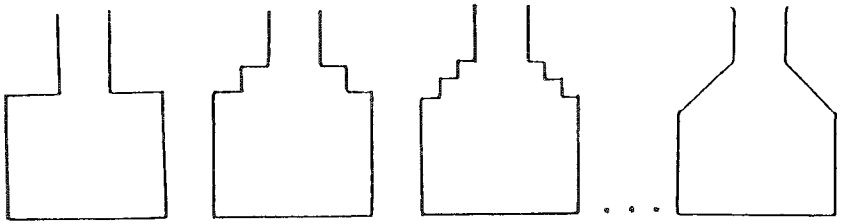
* Draw sketch graphs for the following sequence of bottles.



* Using your sketches explain why a bottle with straight sloping sides does not give a straight line graph (ie: explain why the ink bottle does *not* correspond to graph g).

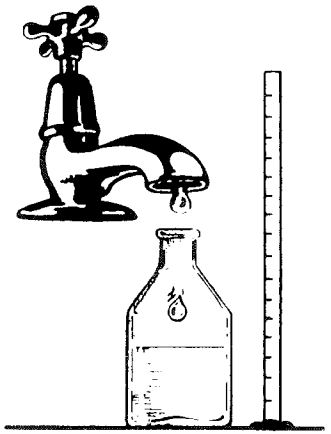
* Invent your own bottles and sketch their graphs on a separate sheet of paper.
Pass only *the graphs* to your neighbour.
Can he reconstruct the shape of the original bottles using only your graphs?
If not, try to discover what errors are being made.

* Is it possible to draw two different bottles which give the same height-volume graph?
Try to draw some examples.

22 (94)

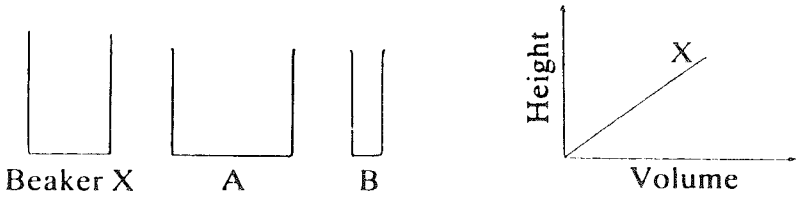
A5 LOOKING AT GRADIENTS

Filling Bottles

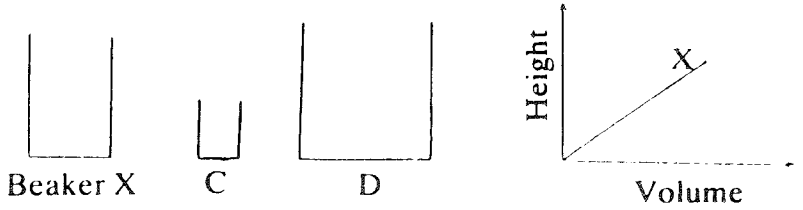


In order to callibrate a bottle so that it may be used to measure liquids, it is necessary to know how the height of the liquid depends upon the volume in the bottle.

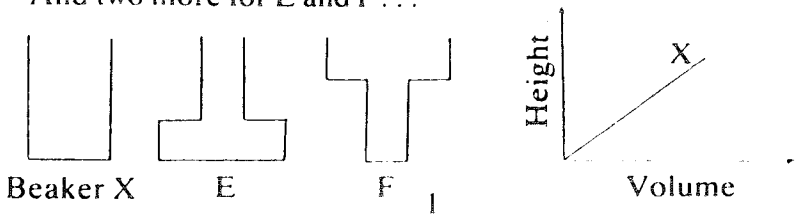
The graph below shows how the height of liquid in beaker X varies as water is steadily dripped into it. Copy the graph, and *on the same diagram*, show the height-volume relationship for beakers A and B.



Sketch two more graphs for C and D . . .



And two more for E and F . . .

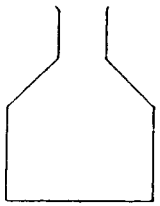


Here are 6 bottles and 9 graphs.

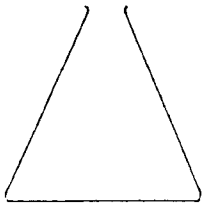
Choose the correct graph for each bottle.

Explain your reasoning clearly.

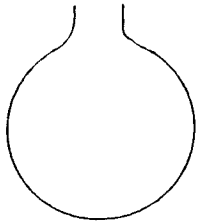
For the remaining 3 graphs, sketch what the bottles should look like.



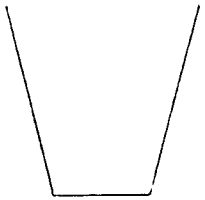
Ink bottle



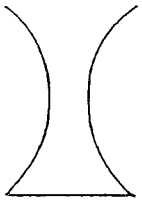
Conical flask



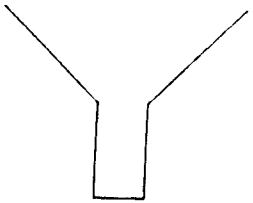
Evaporating flask



Bucket



Vase



Plugged funnel