

M2-1 Graduated Scales

- reading graduated scales

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Summary

If the pointer is on a marked graduation, we just read it off.

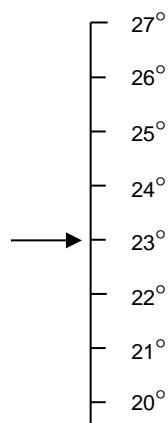
If it is on an unmarked graduation, we first have to work out what numbers correspond to the unmarked graduation in the vicinity and then read it off.

If the pointer is in between graduations, we estimate what fraction of the way from one graduation to the next it is and read it accordingly. If it is between unmarked graduations, we firstly work out what numbers correspond to those graduations.

Learn

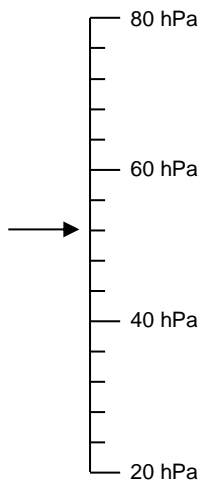
Reading scales where all the graduations are labelled

On the scale below, all the graduations are labelled.



Reading it is straightforward. You just read the label on the graduation indicated. The reading here is 23°.

Reading scales where not all the graduations are labelled



On the scale to the left, not all the graduations are labelled.

To read this scale we have to work out how many hPa for each graduation.

We can see that 5 graduation steps correspond to an increase of 20 hPa.

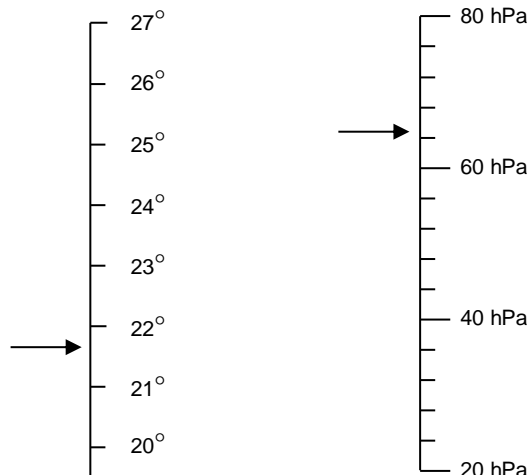
Therefore each step is one fifth of 20 hPa, i.e. 4 hPa.

Then we start counting from the last labelled graduation below the pointer, going up in 4's. We count 40, 44, 48, 52.

So the pointer is pointing to 52 hPa, so the scale reads 52 hPa.

Reading between the graduations

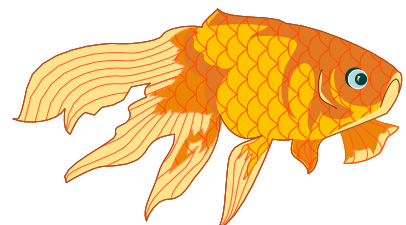
On the scales here, the pointer is not pointing directly at a graduation. So we have to estimate the fractions of a graduation.



In the scale on the left, the pointer is between the 21 and the 22. It is a bit closer to the 22, so we might estimate 21.7°.

On the scale on the right, the pointer is between unlabelled graduations. First we have to work out what labels would go on the graduations either side of the pointer. Then we estimate between those graduations.

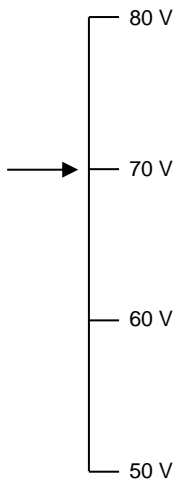
In this case, the graduations below and above the pointer would be 64 hPa and 68 hPa. The pointer is closer to the 64 hPa, so we might estimate 65 hPa.



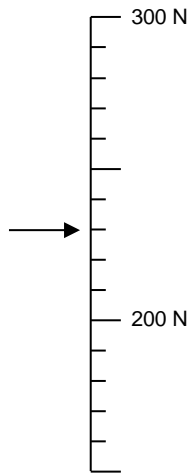
Practice

Q1 Read the following scales.

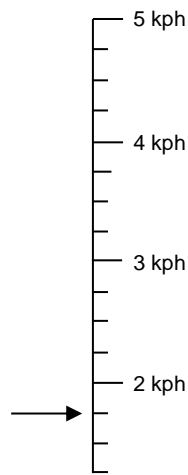
(a)



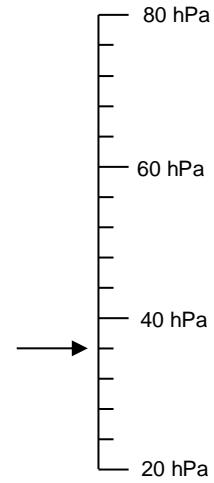
(b)



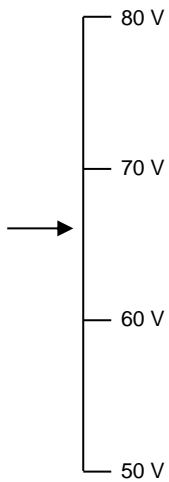
(c)



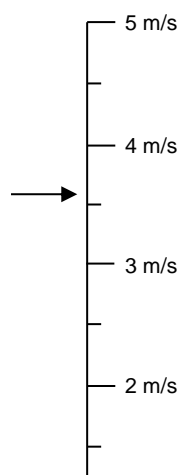
(d)



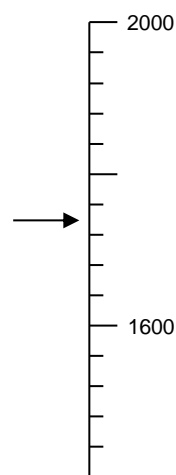
(e)



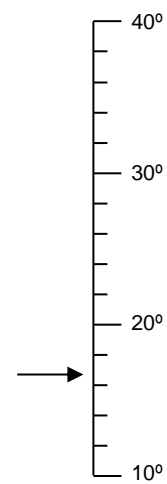
(f)



(g)

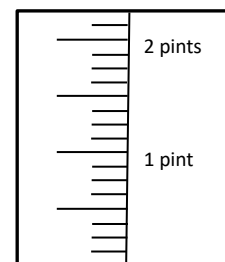


(h)



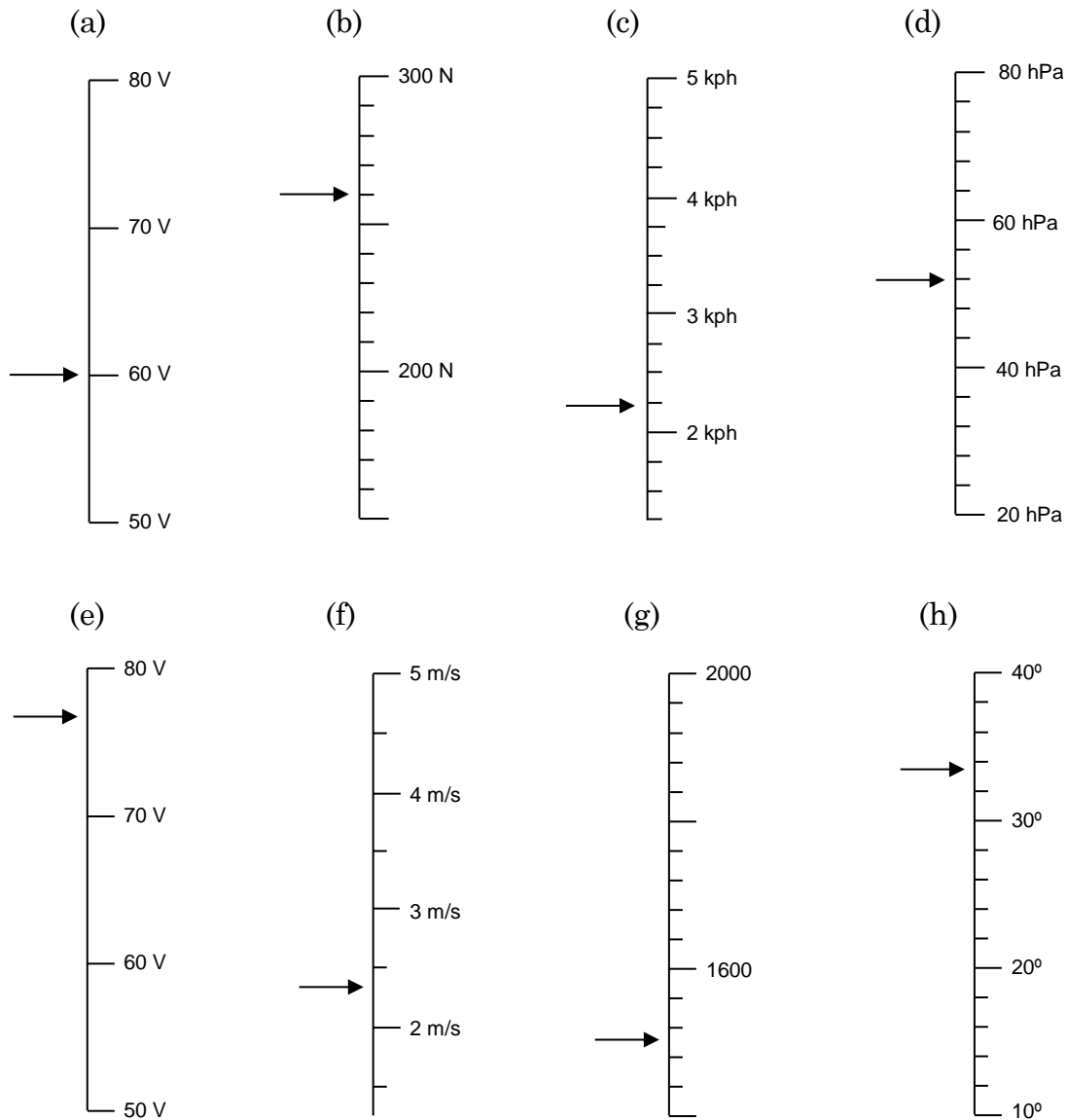
Solve

Q51 If this beaker is half full, how many pints will it hold?
Answer as a common fraction.



Revision Set 1

Q61 Read the following scales.



Answers

Q1 (a) 70 V (b) 230 N (c) 1.75 kph (d) 36 hPa
 (e) 66 V (f) 3.6 m/s (g) 1728-1730 (h) 16.4-16.6°

Q51 $1^5/s$

Q61 (a) 60 V (b) 260 N (c) 2.25 kph (d) 52 hPa
 (e) 77 – 78 V (f) 2.3 – 2.4 m/s (g) 1 530 – 1 535 (h) 33.2 – 33.8°