Checking Capillary Rise With Two Liquid Densities

Base your answers on the information provided and your knowledge of chemistry. Use the 2025 Chemistry Reference Tables as needed.

An exhibit uses two straight tubes with the same inside width. It measures each column from the free liquid surface outside its tube. In this model the upward effect at the wall balances the weight of that raised column. With the same tube width the upward effect is proportional to liquid density times the height above the free surface.

Liquid	Density (model units)	Final rise (mm)
P	1.0	4
Q	1.5	4

1 Which liquid column has more mass above the original liquid level?

(1) P only

(2) Q only

(3) Both have equal mass.

(4) The tube widths prevent a comparison.

2 Calculate density times height for both columns and compare the upward effects in the model. [1]

Answer and work

3 A student says the equal heights show that the upward effects are the same. Explain why the density readings matter. [1]

Answer and work

A third liquid gives the same density-times-height value as Q, but it has density 1.2 model units in the same tube width.

4 Predict the final height for the third liquid. [1]

Answer and work