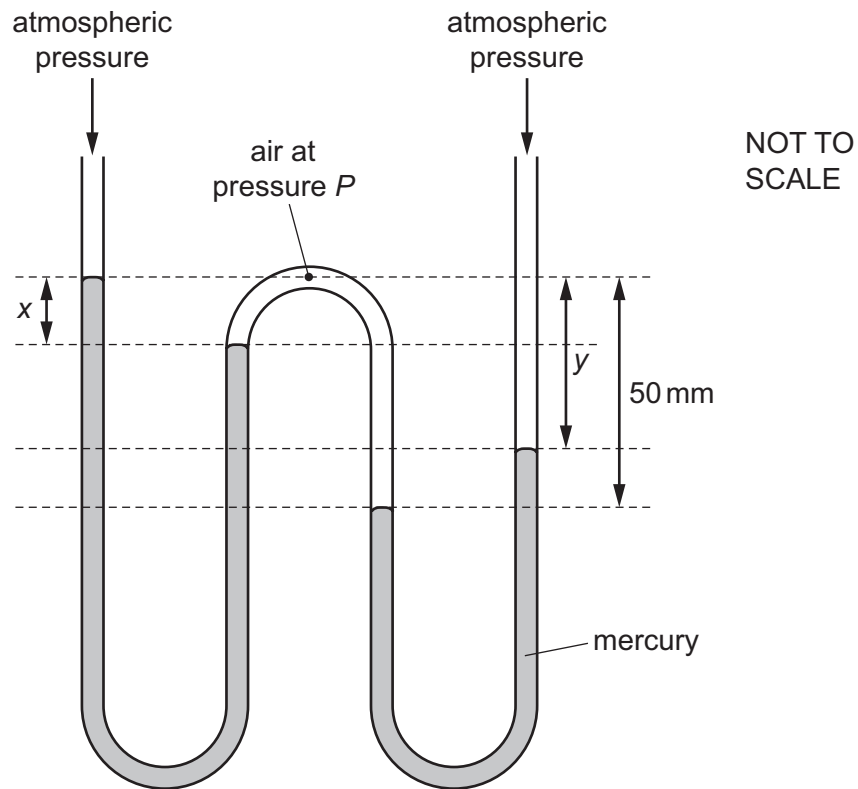


- 21 A W-shaped tube contains two amounts of mercury, each open to the atmosphere. Air at pressure  $P$  is trapped in between them. The diagram shows two vertical distances  $x$  and  $y$ .



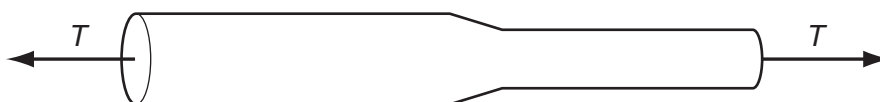
Atmospheric pressure is equal to the pressure that would be exerted by a column of mercury of height 760 mm. The pressure  $P$  is expressed in this way.

Which values of  $x$ ,  $y$  and  $P$  are possible?

	$x/\text{mm}$	$y/\text{mm}$	$P/\text{mm of mercury}$
<b>A</b>	20	20	780
<b>B</b>	20	30	780
<b>C</b>	30	20	810
<b>D</b>	30	30	790

- 22 A steel bar of circular cross-section is under tension  $T$ , as shown.

The diameter of the wide portion is double the diameter of the narrow portion.



What is the value of  $\frac{\text{stress in the wide portion}}{\text{stress in the narrow portion}}$ ?

- A** 0.25      **B** 0.50      **C** 2.0      **D** 4.0