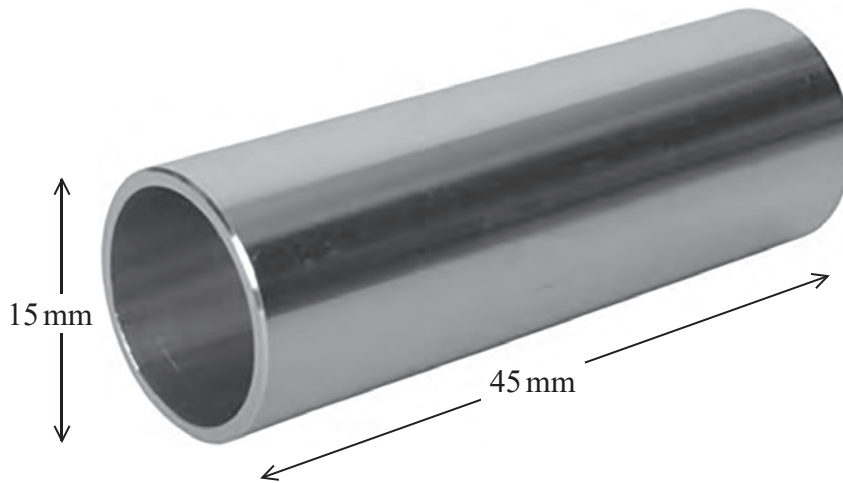


1 An engineer was checking the dimensions of a steel tube. The tube had a length of about 45 mm and an external diameter of about 15 mm as shown.



She used a digital micrometer to measure the diameter of the tube. Before taking the reading she closed the jaws of the micrometer to check for a zero error.

(a) State the type of error she avoided by doing this.

(1)

(b) Describe the procedure she should follow to determine an accurate value for the external diameter of the tube.

(3)

(c) The engineer determined the length of the tube using the micrometer. The reading on the micrometer scale was 45.043 mm. She recorded the reading as 45.0 mm. State why recording a reading of 45.043 mm could not be justified.

(1)

(Total for Question 1 = 5 marks)