

Name: Date: IB 1 Physics
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## Uncertainties

Remember to express uncertainties to 1 significant figure in your final answer (only).

1. A measured length is  $50 \text{ mm} \pm 1 \text{ mm}$ . Find the percentage uncertainty.
2. An ammeter reads current up to  $5.0 \pm 5 \%$ . What is the absolute uncertainty in a reading of  $4.2 \text{ A}$ ?
3. The dimensions of a TV screen are given by  $40 \text{ cm} \times 40 \text{ cm}$ . If the uncertainty in each reading is  $2 \text{ mm}$ , what is the absolute and % uncertainty in the area?
4. The radius of a cycle wheel is  $0.46 \pm 0.01 \text{ m}$ . What is the area of the wheel?
5. A cube has a side of length  $5.0 \pm 0.1 \text{ cm}$ . Find the volume of the cube and the uncertainty in your answer.
6. A cylinder is measured using a ruler and a pair of Vernier calipers.  
With the ruler, the measurements were:  
Length =  $10.2 \pm 0.1 \text{ cm}$ , radius =  $5.1 \pm 0.1 \text{ cm}$ .  
With the calipers, the measurements were:  
Length =  $10.24 \pm 0.01 \text{ cm}$ , radius =  $5.07 \pm 0.01 \text{ cm}$ .  
Find the volume in each case and the uncertainty in your answer.  
Is the uncertainty reduced significantly using the Vernier calipers?