Ex 1 A carpet measures 3.60 m by 2.40 m each measurement correct to nearest 10 cm Find upper and lower bounds for its area and perimeter.

Area = L x W Perimeter 2L + 2W

$3.55 \leq L < 3.65$

$2.35 \leq W < 2.45$

Upper Bound For Area = max L x max W

$= 3.65 \times 2.45$

$= 8.9425\ m^2$

Lower Bound for Area = min L x min W

$= 8.3425\ m^2$

Upper Bound for Perimeter

$= 2 \times 3.65 + 2 \times 2.45 = 12.2\ m$

Lower Bound for Perimeter

$= 2 \times 3.55 + 2 \times 2.35 = 11.8\ m$

Ex 2 John runs 100 m in 12 seconds The distance is measured to the nearest 5m

and the time is measured to the nearest second

Find upper and lower bounds for his average speed

$97.5 \leq \text{Distance} < 102.5$

$11.5 \leq \text{Time} < 12.5$

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Upper Bound for Speed} = \frac{\text{Max Distance}}{\text{Min Time}} = \frac{102.5}{11.5}$$

$$= \underline{8.91 \text{ ms}^{-1}}$$

$$\text{Lower Bound for Speed} = \frac{\text{Min Distance}}{\text{Max Time}} = \frac{97.5}{12.5}$$

$$= \underline{7.8 \text{ ms}^{-1}}$$

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1a) Area 5cm x 9cm (nearest cm)

$8.5 \leq \text{Length} < 9.5$

$4.5 \leq \text{width} < 5.5$

$8.5 \times 4.5 \leq \text{Area} < 9.5 \times 5.5$

$38.25 \text{cm}^2 \leq \text{Area} < 52.25 \text{cm}^2$

Hwk Revise For Indices test on Monday