

Assignment 1: Significant figures and Error analysis

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Problem 1. Round the following math operations:

- $223.64 + 54 =$
- $5560.5 + 0.008 =$
- $273.92 \times 3.25 =$
- $1/3 \times 5.20 =$
- $1.97 \times 2 =$
- $2.0 \times \text{Pi} =$
- $6.6 \times 7328.7 =$

Problem 2. Report the following result to the correct number of significant figures:
 $3.221 - ((4.33 \times 10^{-6}) / (2.7 \times 10^{-5}))$

Problem 3. What is the error in length of molding to put around a room? Length = $5.0\text{cm} \pm 0.5\text{cm}$ and Width = $6.0\text{cm} \pm 0.3\text{cm}$.

Problem 4. What is the error in the area of the room described in problem 1?

Problem 5. What is the error in the circumference of a circle for radius, $R = 2.15 \pm 0.08$ cm.

Problem 6. What is the error in the volume of a sphere for radius, $R = 2.15 \pm 0.08$ cm.

Problem 7. Calculate percentage fractional uncertainty in mass $m = 75.5 \pm 05$ g.