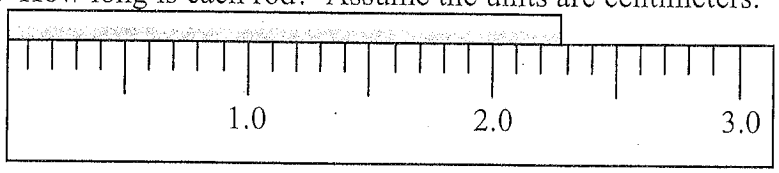
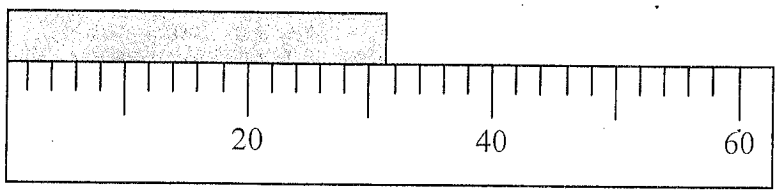
Problem Set: More Significant Figures

3.1. How long is each rod? Assume the units are centimeters.

(a)

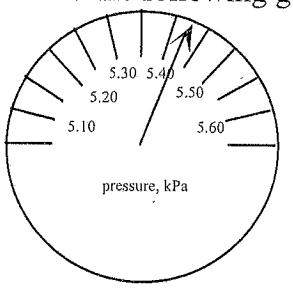


(b)

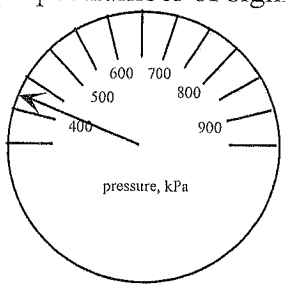


3.2. Read the following gauges to the proper number of significant figures.

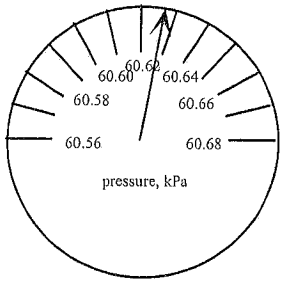
(a)



(b)



(c)



3.3. How many significant figures are in the following numbers? (a) 5.009×10^5 (b) 0.006510 (c) 1.000001 (d) –9.01.

3.4. How many significant figures are in the following numbers? (a) 0.00005 (b) 978,000 (c) 6.022×10^{23} (d) $6.6260755 \times 10^{-34}$.

3.5. Evaluate the following expressions to the proper number of significant figures. (a) 55,993 + 354.9 (b) 24,080 – 35 (c) 0.00103 – 0.00088 (d) $7.22 \times 10^3 + 6.89 \times 10^2$

3.6. Evaluate the following expressions to the proper number of significant figures. (a) 102,993 + 6700 + 12,065 (b) 0.9634 – 0.0622 – 0.029 (c) 7845 + 3460 – 22.4

3.7. Would you consider π an exact number or not? Explain your answer.

3.8. Evaluate the following expressions to the proper number of significant figures. (a) $22.4 \times 8.314 \times 298.15$ (b) $\dfrac{4.184 \cdot 2.08}{1.987}$ (c) $2 \cdot \dfrac{(1.61)^2}{4 \cdot \pi \cdot (6.626)^2}$ (assume that the 2, 4, and the π are exact).

3.9. Given the following expression

$$\frac{(745)(V)}{310.5} = \frac{(802)(4.50)}{298.15}$$

solve for V to the correct number of significant figures.

3.10. Given the following expression

$$\frac{(603.65)(25.88)}{598.2} = \frac{(499.20)(12.0)}{T}$$

solve for T to the correct number of significant figures.

3.11. Given the following expression

$$\Delta G = -(3)(96{,}477)(-1.019)$$

solve for ΔG to the correct number of significant figures. The 3 is exact.