

Biophysics Series 01

Exercise 01

Determine the number of significant figures in the following numbers :

- | | |
|--------------------------|-----------------------|
| a) 67.1 | h) 6.30×10^5 |
| b) 0.072 | i) 5.0×10^4 |
| c) 3.1416 | j) 3.0054 |
| d) 6.28 | k) 0.0054 |
| e) 0.00173 | l) 0.100 |
| f) 0.000056 | m) 0.0004000 |
| g) 2.30×10^{-9} | |

Exercise 02

During a practical exercise in measuring masses and volumes, we obtained the following results:

- Mass of solute 1 is 1658.1 g. Write the result to 4 significant figures and then to 5 significant figures.
- Mass of solute 2 is 124.038 g. Write the result to 1 significant figure, then to 2 significant figures.
- The volume of the solution is 0.620153 L. Write the result to 3 significant figures, then to 4 significant figures.

Exercise 03

Express the following results using significant figures and units.

- a) $4.2 \text{ cm} + 4.6 \text{ cm}$
- b) $4 \text{ m}^2 - 200 \text{ cm}^2$
- c) $1.2 \text{ atm} + 1.02 \times 10^5 \text{ pa}$
- d) $6.00 \text{ Kg} \times 4.2 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}} \times 276.3 \text{ K}$
- e) $3.64 \text{ g} \times 4.5406 \text{ mL}$
- f) $\frac{4.854 \text{ m} + 3.60 \text{ cm}}{2}$
- g) $\frac{4.54 \text{ g}}{35.5 \text{ g} \cdot \text{mol}^{-1}}$
- h) $\frac{2.00 \times 10^3 \text{ J}}{8.0 \times 10^2 \text{ s}}$

Exercise 04

Using measurements, we have determined that the area of a circular slick is 21.2 hectares.

- a) What is the radius of the slick?
- b) What is the diameter of the slick?