

SIGNIFICANT FIGURES ANSWER KEY

Instructions: Identify the number of sig figs in numbers and practice using them in calculations.

1. **Estimate** the size of each of the following to two significant figures (do not use any measuring tool or a calculator!):

a.	The mass of a large orange	150	g
b.	Diameter of a basketball	23	cm
c.	Volume of one of the classroom sinks	0.25	m ³

2. State the number of significant figures in each of the measurements in the table below, then express each of the values in scientific notation to two significant figures.

	Measurement	Number of significant figures	In scientific notation to 2 sig. figs.
a.	0.0060 kg	2	6.0×10^{-3} kg
b.	1.0610 m	5	1.1×10^0 m OR 1.1 m
c.	4086 km	4	4.1×10^3 km
d.	462.52 J	5	4.6×10^2 J

3. Complete each of the following calculations, giving your answers in the appropriate number of significant figures. Include appropriate units with your answers.

a. $4.62 \text{ cm} + 8.9561 \text{ cm} + \overset{\downarrow}{5.9} \text{ cm} = \underline{19.5 \text{ cm}}$

b. $46.9 \text{ cm} \times 12.4 \text{ cm} \times \overset{2 \text{ s.f.} \downarrow}{5.6} \text{ cm} = \underline{3.3 \times 10^3 \text{ cm}}$

c. $(6.4 \text{ m} + 5.92 \text{ m} - \overset{\downarrow}{4.3} \text{ m}) \div 2.25 \text{ s} = \overset{2 \text{ s.f.} \downarrow}{(8.0 \text{ m})} \div 2.25 \text{ s} = \underline{3.6 \text{ m/s}}$

d. Calculate the area of a square with sides of $\overset{2 \text{ s.f.} \downarrow}{5.6} \text{ cm}$: $\underline{31 \text{ cm}^2}$

e. Calculate the volume of a marble with a radius of $\overset{4 \text{ s.f.} \downarrow}{1.905} \text{ cm}$: ~~_____~~

4. $V = \frac{4}{3} \pi r^3 = \frac{4}{3} \pi (1.905)^3 = \underline{\hspace{2cm}}$

$V = \sqrt[3]{28.94 \text{ cm}^3}$ $V = \frac{4 \cdot 6.913 \text{ cm}^3 \cdot \pi}{3} = \frac{27.653 \times 3.14}{3} = \frac{86.830}{3}$