

Exercise 1.49

Carry out the following operations and express the answers with the appropriate number of significant figures.

(a) $14.3505 + 2.65$

(b) $952.7 - 140.7389$

(c) $(3.29 \times 10^4)(0.2501)$

(d) $0.0588/0.677$

Solution**Part (a)**

Uncertainty lies in the hundredths place of 2.65, whereas uncertainty lies in the ten thousandths place of 14.3505. Round the answer to the hundredths place, then.

$$14.3505 + 2.65 = 17.0005$$
$$\approx 17.00$$

Part (b)

Uncertainty lies in the tenths place of 952.7, whereas uncertainty lies in the ten thousandths place of 140.7389. Round the answer to the tenths place, then.

$$952.7 - 140.7389 = 811.9611$$
$$\approx 812.0$$

Part (c)

3.29×10^4 has three significant figures, whereas 0.2501 has four significant figures. Round the final answer to three significant figures, then.

$$(3.29 \times 10^4)(0.2501) = 8228.29$$
$$\approx 8.23 \times 10^3$$

Part (d)

0.0588 has three significant figures, and 0.677 has three significant figures. Round the final answer to three significant figures, then.

$$\frac{0.0588}{0.677} = 0.08685376662\dots$$
$$\approx 0.0869$$