Solutions

Award method and answer marks as indicated; accept equivalent correct methods.

2.1

- The hundreds digit is 6, so round up: **9000**.

2.2

- The third decimal digit is 6, so **4.28**.

2.3

- The significant digits begin at 6; the next after 7 is 3, so **0.0067**.

2.4

- $Q \approx 50/10 = \mathbf{5}$.

3.1

(a)

- $Q \approx (20 \times 5)/0.5 = \mathbf{200}$.

(b)

- $Q = (19.6 \times 5.12)/0.49 = 204.8$, so **205** to three significant figures.

(c)

- $B = 205/48 = 4.2708\ldots$; round up to **5 buses**, because four carry only 192.

3.2

(a)

- Estimate $N_e = 20/0.5 = \mathbf{40}$ boxes.
- Actual $N = 18.7/0.48 \approx 38.9583$, so buy **39 boxes**.

(b)

- Use $C = Nc = 39(31.60)$, giving $C = \mathbf{1232.40}$ yuan.
- Only 38 boxes cover $A = 38(0.48) = 18.24\ \text{m}^2$, less than $18.7\ \text{m}^2$, so 38 are insufficient.

3.3

(a)

- The first significant figure is the 4: **0.049**.

(b)

- **3000**.

3.4

- Rounded: $\dfrac{60+40}{5}$; this gives $\dfrac{100}{5} = \mathbf{20}$.