ALL these questions can be completed WITHOUT a calculator.

Work out:

1. $\dfrac{(4\times3)^2}{4^2\times3}$

2. $\dfrac{5\times6^2}{(3\times4)^2}$

3. $\dfrac{7^2\times2\times3^2}{7\times2^2\times3}$

4. $\dfrac{4^2\times5\times8}{(4\times5)^2}$

Round each number to the given number of significant figures:

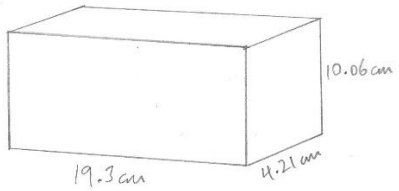
5. 216.35 (2sf)
6. 52.7892 (4sf)
7. 0.04527 (2sf)

Estimate an answer by rounding each figure to 1sf first.

8. $\dfrac{37\times43}{22.2\times4.98}$

9. $\dfrac{13.6+12.23}{4.3\times0.97}$

10. A cuboid box for toy is shown:



a) Round each side length to 1sf
b) Using the figures to a) calculate the volume of the box.
c) Is your answer to b) an underestimate or an overestimate? Why?

Answers:

1. $\dfrac{(4\times3)^2}{4^2\times3}=\dfrac{3\times3\times4\times4}{4\times4\times3}=3$

2. $\dfrac{5\times6^2}{(3\times4)^2}=\dfrac{5\times6\times6}{3\times3\times4\times4}=\dfrac{20}{16}=\dfrac{5}{4}=1\dfrac{1}{4}$

3. $\dfrac{7^2\times2\times3^2}{7\times2^2\times3}=\dfrac{7\times7\times2\times3\times3}{7\times2\times2\times3}=\dfrac{7\times3}{2}=\dfrac{21}{2}=10\dfrac{1}{2}$

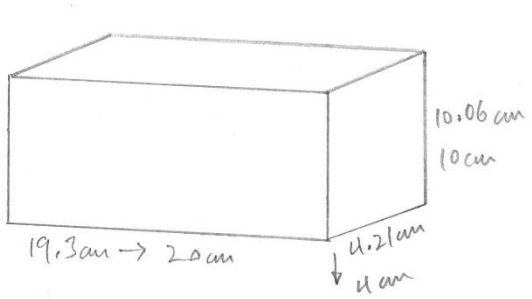
4. $\dfrac{4^2\times5\times8}{(4\times5)^2}=\dfrac{4\times4\times5\times8}{4\times4\times5\times5}=\dfrac{8}{5}=1\dfrac{3}{5}$

5. 216.35 ≈ 220
6. 52.7892 ≈ 52.79
7. 0.04527 ≈ 0/045

8. $\dfrac{37\times43}{22.2\times4.98}=\dfrac{40\times40}{20\times5}=\dfrac{1600}{100}=16$

9. $\dfrac{13.6+12.23}{4.3\times0.97}=\dfrac{10+10}{4\times1}=\dfrac{20}{4}=5$

10.



a) 20cm, 4cm, 10cm
b) 20 x 4 x 10 = 800cm^2
c) Underestimate. Two out of the three dimensions have been rounded DOWN so the answer will be LOWER than the real answer would be.
(Check with calculator: 19.3 x 4.21 x 10.06 ≈ 817.405cm^2)