GCSE HIGHER · REVISION MAT 2

Upper and lower bounds

1 A mass is 70 kg to the nearest 10 kg.

Write down its bounds.

2 $a = 3.7$ and $b = 2.4$, both to 1 d.p.

Find the lower bound of $a + b$.

3 A value is 12 to the nearest whole number.

Explain why its upper bound is 12.5, not 12.4.

4 A square has sides of 9 cm, to the nearest cm.

Find the lower bound of its perimeter.

5 $p = 60$ to the nearest 5.

$q = 2.5$ to 1 d.p.

Show that the upper bound of $\frac{p}{q}$ is about 25.5.

6 A car travels 125 km (nearest km) in 1.5 hours (nearest 0.1 h).

Find the lower bound of its speed.

7 A cuboid measures 4 cm, 5 cm and 6 cm, each to the nearest cm.

Show that its maximum volume is 160.875 cm^3.

8 A right-angled triangle has shorter sides 6.2 cm and 8.5 cm, to 1 d.p.

Find the upper bound of the hypotenuse to 3 s.f.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 2

Upper and lower bounds

1 **65 kg and 75 kg**

2 $3.65 + 2.35$

6.0

3 **Every number up to (but not) 12.5 rounds to 12, so 12.5 is the boundary.**

4 8.5×4

34 cm

5 $\frac{62.5}{2.45}$

= 25.51...

6 $\frac{124.5}{1.55}$

80.3 km/h

7 $4.5 \times 5.5 \times 6.5$

= 160.875 cm³

8 $\sqrt{6.25^2 + 8.55^2}$

$= \sqrt{112.165}$

10.6 cm

Mr&Mrs MATHS