Test - Number: approximation, error intervals and calculators

Year: Year 9 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – Rounding

Round each number as instructed.

a. 5.0764 to 2 decimal places (1 mark)
b. 5.0764 to 3 significant figures (1 mark)
c. 0.007382 to 2 significant figures (1 mark)
d. $36\,450$ to 1 significant figure (1 mark)

Question 2 (4 marks)

Question 2 – Estimating

Estimate $\dfrac{6.9 \times 4.1}{0.52}$.

a. Round each number to 1 significant figure and work out the estimate. (2 marks)
b. Use a calculator to find the exact answer to 3 significant figures. (1 mark)
c. Is your estimate an over-estimate or under-estimate? (1 mark)

Question 3 (4 marks)

Question 3 – Error intervals

Write down the error interval for each.

a. $l = 8.6$ cm to 1 decimal place (2 marks)
b. $m = 450$ g to the nearest 10 g (1 mark)
c. $n = 3000$ to 1 significant figure (1 mark)

Question 4 (4 marks)

Question 4 – Problem: cycling speed

Fatima cycles 60 km, to the nearest kilometre, in 2.5 hours, to the nearest 0.1 hour. Speed $=$ distance $\div$ time.

a. Write the bounds for the distance and the time. (2 marks)
b. Find the upper and lower bounds of her speed to 1 decimal place. (2 marks)

Question 5 (4 marks)

Question 5 – Problem: types of number

Here are five numbers: $\sqrt{49}$, $\sqrt{7}$, 0.5, π, $\frac{4}{9}$.

a. Write down the irrational numbers. (2 marks)
b. Show that 0.5 is rational. (1 mark)
c. Explain why $\sqrt{49}$ is not irrational. (1 mark)