GCSE Maths

Numbers

Bounds and Accuracy

Name:
Date:

Materials

You can use a calculator for these questions

Tips

Show how you worked out the answer if you can.

Simple Questions

1. Round 345.78 to 1 decimal place.

Answer _____ **[1 mark]**

2. Round 6,427 to the nearest hundred.

Answer _____ **[1 mark]**

3. Write 0.07653 to 2 significant figures.

Answer _____ **[1 mark]**

4. A number is given as 4.3 to 1 decimal place.
What is the lower and upper bound?

Answer _____ **[1 mark]**

5. A length is measured as 12 cm to the nearest cm.
What is the smallest and largest possible actual length?

Answer _____ **[1 mark]**

Medium Questions

6. A weight is measured as 2.5 kg to 1 decimal place.
Write the error interval for the weight.

Answer _____ **[2 mark]**

7. Round 0.004376 to 3 significant figures.

Answer _____ **[2 mark]**

8. A rectangle has a measured length of 5.2 cm (1 d.p.) and a width of 3.8 cm (1 d.p.). Find the lower and upper bounds for the perimeter.

Answer _____ **[2 mark]**

9. A number is rounded to 2 decimal places and becomes 7.86.
What is the maximum possible value of the original number?

Answer _____ **[2 mark]**

10. A time is measured as 3.2 seconds to 1 decimal place.
Express the time as an error interval.

Answer _____ **[2 mark]**

Difficult Questions

11. A rectangular garden has a length of 12.4 m (rounded to 1 decimal place) and a width of 8.2 m (rounded to 1 decimal place).
Calculate the lower and upper bounds for the area.

Answer _____ **[3 mark]**

12. A runner records their time as 10.5 seconds to 1 decimal place.
What is the percentage error if the actual time was 10.48 seconds?

Answer _____ **[3 mark]**

13. The volume of a cylinder is given by $V = \pi r^2 h$.
The radius is measured as 6.0 cm (1 d.p.) and the height as 10.0 cm (1 d.p.).
Find the upper bound for the volume.

Answer _____ **[3 mark]**

14. A car's speed is calculated using $Speed = \frac{Distance}{Time}$. If the distance is 50 m (rounded to the nearest metre) and the time is 4.3 s (rounded to 1 d.p.), determine the maximum possible speed.

Answer _____ **[3 mark]**

15. The mass of a metal bar is measured as 3.65 kg to 2 decimal places.
What is the greatest possible percentage error in this measurement?

Answer _____ **[3 mark]**