

GCSE Mathematics

H

Upper & Lower Bounds Practice

Higher, Grade 6-7

Total Marks	Time	Questions
40	40 min	20

Instructions:

- Do not use a calculator when you see: 
- Answer all questions in the spaces provided.
- Show all your working - marks are awarded for method as well as final answers.
- Cross through any work you do not want to be marked.
- Check your answers if you have time at the end.

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Edexcel-style questions**Q1**

Grade 6

Edexcel style

A length is measured as 8 cm, correct to the nearest cm. Write down the upper and lower bounds of the length.

Answer _____

teachably

[2 marks]**Q2**

Grade 6

Edexcel style

A number, n , is 27 correct to the nearest whole number. Write down the error interval for n .

Answer _____

teachably

[2 marks]**Q3**

Grade 7

Edexcel style

Two lengths are measured as 12 cm and 8 cm, both correct to the nearest cm. Work out the maximum possible value of the sum of the two lengths.

Answer _____

teachably

[2 marks]

Q4

Grade 7

Edexcel style

A rectangle has a length of 8 cm and a width of 5 cm, both correct to the nearest cm. Work out the maximum possible area of the rectangle.

Answer _____

teachably

[2 marks]**Q5**

Grade 7

Edexcel style

A rope is cut into 6 equal pieces. Each piece is measured as 45 cm long, correct to the nearest cm. Work out the maximum possible original length of the rope before cutting.

Answer _____

teachably

[2 marks]

AQA-style questions**Q6**

Grade 6

AQA style

A mass is measured as 350 g, correct to the nearest 10 g. Write down the upper and lower bounds of the mass.

Answer _____

teachably

[2 marks]**Q7**

Grade 6

AQA style

A number, x , is 4.2 correct to 1 decimal place. Write down the error interval for x .

Answer _____

teachably

[2 marks]**Q8**

Grade 7

AQA style

A plank of wood is 250 cm long, correct to the nearest 10 cm. A piece 40 cm long, correct to the nearest 10 cm, is cut off. Work out the minimum possible length of wood remaining.

Answer _____

teachably

[2 marks]

Q9

Grade 7

AQA style

A car travels 150 miles, correct to the nearest 10 miles, in 3 hours, correct to the nearest whole hour. Work out the maximum possible average speed of the car.

Answer _____

teachably

[2 marks]**Q10**

Grade 7

AQA style

A box weighs 24 kg, correct to the nearest kg. It is unsafe to lift if its true weight is greater than 24.6 kg. Is it possible that the box is unsafe to lift? Use the upper bound of the weight to justify your answer.

Answer _____

teachably

[2 marks]

OCR-style questions**Q11**

Grade 6

OCR style

A distance is measured as 6.4 km, correct to 1 decimal place. Write down the upper and lower bounds of the distance.

Answer _____

teachably

[2 marks]**Q12**

Grade 6

OCR style

A number, m , is 500 correct to 2 significant figures. Write down the error interval for m .

Answer _____

teachably

[2 marks]**Q13**

Grade 7

OCR style

Two masses are measured as 15 kg and 9 kg, both correct to the nearest kg. Work out the minimum possible value of the difference between the two masses.

Answer _____

teachably

[2 marks]

Q14

Grade 7

OCR style

A rectangle has an area of 49 cm^2 , correct to the nearest whole number, and a width of 8 cm, correct to the nearest cm. Work out the maximum possible length of the rectangle.

Answer _____

teachably

[2 marks]**Q15**

Grade 7

OCR style

A rectangular garden has a length of 12 m and a width of 7 m, both correct to the nearest metre. Is the area of the garden guaranteed to be at least 74 m^2 ? Use the lower bound of the area to justify your answer.

Answer _____

teachably

[2 marks]

Teachably-style questions**Q16**

Grade 6

Teachably style

A time is measured as 45 seconds, correct to the nearest 5 seconds. Write down the upper and lower bounds of the time.

Answer _____

teachably

[2 marks]**Q17**

Grade 6

Teachably style

A number, t , is 12.6 correct to 3 significant figures. Write down the error interval for t .

Answer _____

teachably

[2 marks]**Q18**

Grade 7

Teachably style

Two distances are measured as 20 m and 13 m, both correct to the nearest m. Work out the maximum possible value of the sum of the two distances.

Answer _____

teachably

[2 marks]

Q19

Grade 7

Teachably style

A cyclist travels 90 km, correct to the nearest 10 km, in 4 hours, correct to the nearest whole hour. Work out the minimum possible average speed, giving your answer to 3 significant figures.

Answer _____

teachably

[2 marks]

Q20

Grade 7

Teachably style

A stack of 8 identical books has a total height of 20 cm, correct to the nearest cm. Work out the minimum possible height of one book, giving your answer to 3 significant figures.

Answer _____

teachably

[2 marks]

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