Year 9H Workpack

Upper and lower bounds questions

1. 54 327 people watched a concert.

(a) Write 54 327 to the nearest thousand.

.....

(1)

(b) Write down the value of the 5 in the number 54 327.

.....

(1)

(Total 2 marks)

2.

Each side of a regular pentagon has a length of 101 mm, correct to the nearest millimetre.

(i) Write down the **least** possible length of each side.

..... mm

(ii) Write down the **greatest** possible length of each side.

..... mm

(Total 2 marks)

3. (a) Write the number **seventeen thousand, two hundred and fifty-two** in figures.

.....

(1)

(b) Write the number 5367 correct to the nearest hundred.

.....

(1)

(c) Write down the value of the 4 in the number 274 863

……..

(1)

(Total 3 marks)

4. A gold necklace has a mass of 127 grams, correct to the nearest gram.

(a) Write down the **least** possible mass of the necklace.

……grams

(1)

(b) Write down the **greatest** possible mass of the necklace.

……grams

(1)

(Total 2 marks)

5. The length of a rectangle is 6.7 cm, correct to 2 significant figures.

(a) For the length of the rectangle write down

(i) the upper bound,

.....cm

(ii) the lower bound.

.....cm

(2)

The area of the rectangle is 26.9 cm^2, correct to 3 significant figures.

(b) (i) Calculate the upper bound for the width of the rectangle.
Write down all the figures on your calculator display.

.....cm

(ii) Calculate the lower bound for the width of the rectangle.
Write down all the figures on your calculator display.

.....cm

(3)

(c) (i) Write down the width of the rectangle to an appropriate degree of accuracy.

.....cm

(ii) Give a reason for your answer.

.....

(2)

(Total 7 marks)

6. (a) Round 2.3859 to 3 significant figures.

……

(1)

(b) Write 45 : 60 as a ratio in its simplest form.

……

(1)

(Total 2 marks)

7. (a) Write 37 451 correct to 1 significant figure.

……

(1)

(b) Write 0.000 726 9 correct to 1 significant figure.

……

(1)

(Total 2 marks)

8. (a) Write down the value of the 5 in the number 54 327.

.....

(1)

(b) Write 0.874 correct to 1 significant figure.

.....

(1)

(Total 2 marks)

9. (a) Write **three hundred and fifty thousand** in figures.

……

(1)

(b) (i) Write 25 400 in words.

……..

(ii) Write down the value of the **5** in 25 400.

……

(2)

(c) (i) Write 25 730 correct to the nearest thousand.

……

(ii) Write 25 730 correct to the nearest hundred.

……

(2)
(Total 5 marks)

10. Correct to 2 significant figures, the area of a rectangle is 470 cm^2.
Correct to 2 significant figures, the length of the rectangle is 23 cm.

Calculate the upper bound for the width of the rectangle.

…… cm
(Total 3 marks)

Differentiated questions

Green Questions (11 Marks)

1. **These numbers have been rounded to the nearest 10, write down the largest and smallest values they could be:**
   a. **50**
   b. **80**
   c. **110**

2. **These numbers have been rounded to the nearest whole number, write down the upper and lower limits:**
   a. **3**
   b. **17**
   c. **100**
   d. **-3**

3. **These lengths have been rounded to the nearest 10^{th} of a cm, write the upper and lower limits:**
   a. **12.5cm**
   b. **21.7cm**
   c. **52.1cm**
   d. **80.4cm**

Amber Questions (5 Marks)

1. **A field is 100m wide and 120m long, both lengths have been rounded to the nearest metre.**
   a) **Find the perimeter and area of the field if these measurements are accurate**
   b) **Find the largest and smallest possible perimeter**
   c) **Find the largest and smallest possible area.**

2. **Two lengths of wood are stuck together and their combined length is rounded to the nearest mm and it is 14.9cm, one length is rounded to the nearest mm and is 7.1cm. Find the minimum and maximum length of the other length.**

Red Harder Questions (9 marks)

1. **Katy drove from 238km, correct to the nearest metre. She used 27.3 litres of petrol, to the nearest tenth of a litre. Work out the upper bound for the petrol consumption in km per litre for Katy's journey. Give your answer to 2 decimal places.**

2. **A room measures 6m by 8m to the nearest metre. A carpet tile measures 50cm exactly. What is the maximum number of carpet tiles that need to be bought to cover the floor of the rectangular room?**

3. **X and Y are continuous values, both measured to 2 significant figures.**

   X = 230 and Y = 400

   Work out the greatest possible value of $\frac{X}{Y^2}$.