Limits of accuracy

Miss Parnham

Limits of accuracy

1. Write down the lower and upper bound for each of the following.

a) 55 cm measured to the nearest cm.

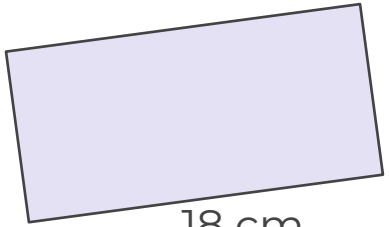
b) 120 kg measured to the nearest 10 kg.

c) 45 minutes measured to the nearest 30 seconds.

d) 800 ml measured to the nearest 50 ml.

e) 2kg measured to the nearest 200 g.

2. The sides of a rectangle are given correct to the nearest tenth of a cm.



a) Calculate the upper bound of the perimeter of the rectangle.

b) Calculate the lower bound of the area of the rectangle.

Limits of accuracy

3. The length of a field is measured correct to the nearest 5 m.
A farmer is wanting to put a fence on side AB.
If fencing is £15 per metre what is the maximum amount he will need to spend on fencing?

4. The temperature in London is measured in degrees Celsius each day for 5 days. The data is given rounded to 2 decimal places.
Here are the results.

Day 1	Day 2	Day 3	Day 4	Day 5
11.34	15.67	9.45	19.32	24.65

a) Work out the maximum value for the range.

b) Work out the lowest possible value for the mean.

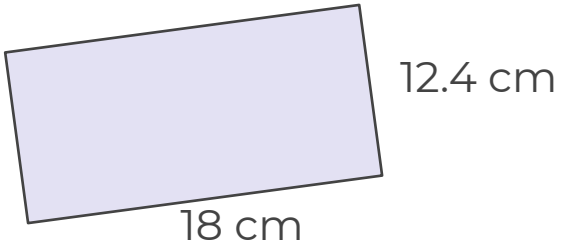
Answers

Limits of accuracy

1. Write down the lower and upper bound for each of the following.

a) 55 cm measured to the nearest cm
LB = 54.5cm UB = 55.5 cm
b) 120 kg measured to the nearest 10 kg
LB = 115 kg UB = 125kg
c) 45 minutes measured to the nearest 30 seconds
LB = 44 min and 45 sec UB = 45 min and 15 sec
d) 800 ml measured to the nearest 50 ml
LB = 775 ml UB = 825 ml
e) 2kg measured to the nearest 200g
LB = 1.9kg UB = 2.1kg

2. The sides of a rectangle are given correct to the nearest tenth of a cm.



a) Calculate the upper bound of the perimeter of the rectangle.
61 cm
b) Calculate the lower bound of the area of the rectangle. 221.6825 cm^2

Limits of accuracy

3. The length of a field is measured correct to the nearest 5 m.
A farmer is wanting to put a fence on side AB.
If fencing is £15 per metre what is the maximum amount he will need to spend on fencing? 137.5 x 15 =£2062.50

4. The temperature in London is measured in degrees Celsius each day for 5 days. The data is given rounded to 2 decimal places.
Here are the results.

Day 1	Day 2	Day 3	Day 4	Day 5
11.34	15.67	9.45	19.32	24.65

a) Work out the maximum value for the range. 24.655 – 11.335 = 13.32

b) Work out the lowest possible value for the mean. 16.081