

## Examination practice questions

### You should have:

A ruler, protractor, compasses, a pen, pencil, eraser, calculator.  
For some questions, you may need tracing paper.

## Instructions

- Use **black** ink or ball-point pen.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may be used.**

## Information

- The marks for each question are shown in brackets.
- If the number of marks for two similar questions isn't the same, this is likely due to them being modelled on different specifications. In this case, it is worth considering both mark schemes.
- Use the number of marks for each question as a guide as to how much time to spend on each question. As a rough guide, you can multiply the number of marks by 1.2 to see how many minutes you should spend on a question.
- Questions will generally get more challenging as the document progresses. Some of the latter questions will go beyond the core grade level for this topic.

## Advice

- Read each question carefully before you start to answer it.
- Don't forget to have fun.
- Check your answers at the end.

# CALCULATING BOUNDS

Q1.

AtoZrevision.com

A mass is written as 430kg, correct to the nearest 10kg.

Circle the **least** possible value of this mass.

± 5

425 kg

429.5 kg

426 kg

(1 mark)

Q2.

AtoZrevision.com

The length of a track is 130m, correct to the nearest 10m.

What is the **largest** possible length of the track?

± 5

135m

(1 mark)

Q3.

AtoZrevision.com

The attendance at a football match was 67 500, correct to the nearest hundred.

What was the lowest possible attendance?

± 50

67450

(1 mark)

Q4.

AtoZrevision.com

A charity plants 4600 trees, correct to the nearest hundred.

What is the highest possible number of trees planted?

± 50

4650

(1 mark)

Q5.

AtoZrevision.com

The amount of petrol Cara's car used for the journey was 23 litres, correct to the nearest litre.

Write down the greatest possible amount of petrol used.

±0.5

22.5  
..... litres

(1 mark)

Q6.

AtoZrevision.com

Mia cycled 23 km, correct to the nearest km.

±0.5

What is the least distance Mia could have cycled?

22.5  
..... km

(1 mark)

Q7.

AtoZrevision.com

A suitcase weighs 23 kilograms, correct to the nearest kilogram.

±0.5

Write down the smallest possible weight and the largest possible weight of the suitcase.

smallest = 22.5  
..... Kg

largest = 23.5  
..... kg

(2 marks)

Q8.

AtoZrevision.com

An angle is measured as 27° correct to the nearest degree.

±0.5

Write down the smallest possible size of the angle.

26.5  
.....

(1 mark)

Q9.

AtoZrevision.com

The largest fish Mandy caught last year weighed 11 kg correct to the nearest kg.

Write down the smallest possible weight of this fish.

$\pm 0.5$

10.5.....

(1 mark)

Q10.

AtoZrevision.com

A time period is written as 22 seconds, correct to the nearest second.

Circle the **least** possible value of this time period.

$\pm 0.5$

22 s

20 s

21 s

21.5 s

21.4 s

(1 mark)

Q11.

AtoZrevision.com

The diagram shows a solid cylinder.

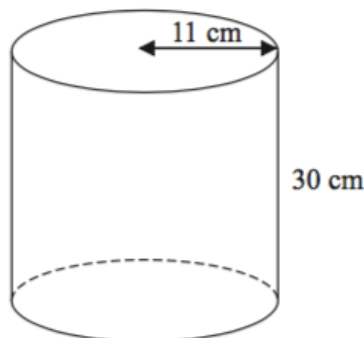


Diagram NOT accurately drawn

The height of the cylinder is 30 cm, correct to the nearest centimetre.

Write down the lower bound of the height of the cylinder.

$\pm 0.5$

29.5..... cm

(1 mark)

Q12.

AtoZrevision.com

The weight of a bag of potatoes is 25 kg, correct to the nearest kg.

Write down the largest possible weight of the bag of potatoes.

$$\pm 0.5$$

25.5

(1 mark)

Q13.

AtoZrevision.com

A preformed bag of coal weighs 40 kg correct to the nearest 5 g.

Complete the sticker to attach to this bag of coal.

$$\pm 2.5$$



This bag of coal  
weighs at least  
37.5 kg

(1 mark)

Q14.

AtoZrevision.com

A population is written as 85 people, correct to the nearest five people.

What is the **least** possible value of this population.

$$\pm 2.5$$

82.5

(1 mark)

Q15.

AtoZrevision.com

The length of a book is 33.8 cm, correct to one decimal place.

Write down the upper bound of the length of the book.

$$\pm 0.05$$

33.85 cm

(1 mark)

Q16.

AtoZrevision.com

The length of a line is 12.4cm correct to one decimal place.

$\pm 0.05$

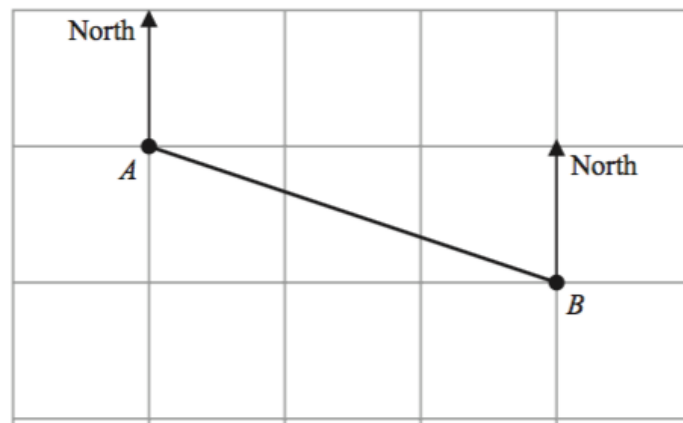
Write down the upper bound for the length of the line.

12.45..... cm

(1 mark)

Q17.

AtoZrevision.com



The diagram shows point A and point B on a map.

Gordon measures a length on the map as 6.3 cm correct to 1 decimal place.

Write down the lower bound for this length.

$\pm 0.05$

6.25..... cm

(1 mark)

Q18.

AtoZrevision.com

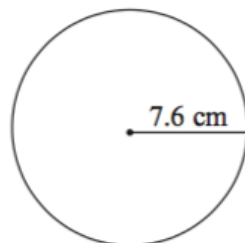


Diagram NOT  
accurately drawn

The radius, 7.6 cm, is correct to 1 decimal place.

Write down the upper bound of the radius.

$\pm 0.05$

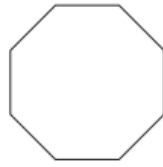
7.65..... cm

(1 mark)

Q19.

AtoZrevision.com

Each side of a regular octagon has a length of 18 mm, correct to the nearest 0.5 mm



± 0.25

Write down the upper bound of the length of each side of the octagon.

18.25 mm

(1 mark)

Q20.

AtoZrevision.com

A number,  $n$ , is rounded to 2 decimal places.

The result is 4.76.

± 0.05

What is the **largest** possible value of  $n$ ?

4.765

(1 mark)

Q21.

AtoZrevision.com



± 0.05

A car's length is 4.70 m and a caravan's length is 6.78 m, both correct to 2 decimal places.

Calculate the lower bound of lengths of the caravan and the car.

car = 4.695 m

caravan = 6.775 m

(2 marks)

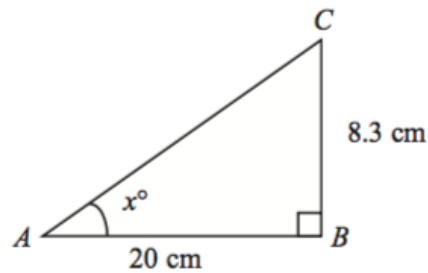


Diagram NOT  
accurately drawn

Triangle  $ABC$  is right-angled at  $B$ .

$AB = 20$  cm, correct to 1 significant figure.

$BC = 8.3$  cm, correct to 2 significant figures.

$\pm 0.5$

Write down the lower bound for the length of  $BC$ .

8.25 cm

(1 mark)

A ball is thrown vertically upwards with a speed  $V$  metres per second.

The height,  $H$  metres, to which it rises is given by

$$H = \frac{V^2}{2g}$$

where  $g$   $m/s^2$  is the acceleration due to gravity.

$V = 24.4$  correct to 3 significant figures.

$g = 9.8$  correct to 2 significant figures.

Write down the lower bound of  $g$ .

$\pm 0.5$

9.75

(1 mark)

Q24.

AtoZrevision.com

The diagram shows the positions of two towns, A and B.

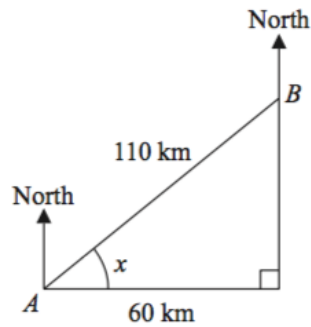


Diagram NOT accurately drawn

The distance from A to B is 110 km correct to 2 significant figures.

$\pm 5$

Write down the upper bound for the distance from A to B.

115 km

(1 mark)

Q25.

AtoZrevision.com

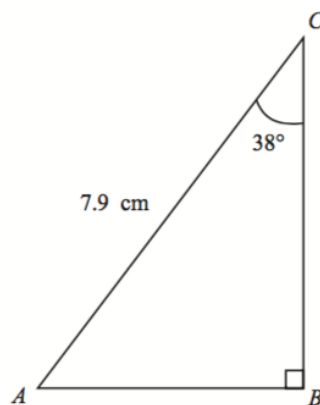


Diagram NOT accurately drawn

The size of angle C is  $38^\circ$ , correct to 2 significant figures.

$\pm 0.5$

Write down the upper bound of the size of angle C.

$38.5^\circ$

(1 mark)

Q26.

AtoZrevision.com

Harley's house has a value of £160 000 correct to 2 significant figures.

Write down the greatest possible value of the house.

4 NOT THE  
BOUND!

£164,999

(1 mark)

Q27.

AtoZrevision.com

A newspaper report states that there are 2500 passengers on the ship, correct to two significant figures.

Write down the maximum number of passengers that could be on the ship.

2549

(1 mark)

Q28.

AtoZrevision.com

Triangle PQR has a right angle at Q.

The length 5.8 cm, of PR, is correct to 2 significant figures.

Write down the upper bound of the length of PR, correct to 3 significant figures.

± 0.05

5.85

(1 mark)

# ERROR INTERVALS

Q1.

AtoZrevision.com

Four friends are going on holiday together. They each take a suitcase.  
The weight of each suitcase is 25 kg, correct to nearest kilogram.

Complete the error interval for the weight,  $w$  kg, of one suitcase.

$$24.5 \leq w < 25.5$$

(2 marks)

Q2.

AtoZrevision.com

The length of a football pitch is 90 metres, correct to the nearest metre.

Complete the error interval for the length of the football pitch.

$$89.5 \leq l < 90.5$$

(2 marks)

Q3.

AtoZrevision.com

The length of a pencil is 128 mm correct to the nearest millimetre.

Complete the error interval for the length of the pencil.

$$127.5 \leq l < 128.5$$

(2 marks)

Q4.

AtoZrevision.com

Freddie measured the length of a pencil as 7.2 cm correct to 1 decimal place.

Complete the error interval for the length,  $p$  cm, of the pencil.

$$7.15 \leq p < 7.25$$

(2 marks)

Q5.

AtoZrevision.com

Jim rounds a number,  $x$ , to one decimal place. The result is 7.2.

Write down the error interval for  $x$ .

$$\underbrace{7.15}_{B_1} \leq x < \underbrace{7.25}_{B_1} \quad (2 \text{ marks})$$

Q6.

AtoZrevision.com

Lyn measures the length,  $x$  cm, of a piece of string as 3.5 cm correct to the nearest millimetre.

Write down the error interval for  $x$ .

$$\underbrace{3.45}_{B_1} \leq x < \underbrace{3.55}_{B_1} \quad (2 \text{ marks})$$

Q7.

AtoZrevision.com

The mass,  $m$  tonnes, of a girder is 12.7, correct to 1 decimal place.

Write down the error interval for the mass,  $m$ .

$$\underbrace{12.65}_{B_1} \leq m < \underbrace{12.75}_{B_1} \quad (2 \text{ marks})$$

Q8.

AtoZrevision.com

Jess rounds a number,  $x$ , to one decimal place. The result is 9.8.

Write down the error interval for  $x$ .

$$\underbrace{9.75}_{B_1} \leq x < \underbrace{9.85}_{B_1} \quad (2 \text{ marks})$$

Q9.

AtoZrevision.com

The length,  $d$ , of Jamal's car is 4.72 m, correct to 2 decimal places.

Complete the error interval for the length,  $d$ .

$$\underbrace{4.715}_{B_1} \leq d < \underbrace{4.725}_{B_1} \quad (2 \text{ marks})$$

Q10.

AtoZrevision.com

A number,  $n$ , is rounded to 2 decimal places. The result is 4.76.

Using inequalities, write down the error interval for  $n$ .

$$\underbrace{4.755}_{B_1} \leq n < \underbrace{4.765}_{B_1} \quad (2 \text{ marks})$$

Q11.

AtoZrevision.com

Martin truncates the number  $N$  to 1 digit.

The result is 7

Write down the error interval for  $N$ .

$$\underbrace{7}_{B_1} \leq N < \underbrace{8}_{B_1} \quad (2 \text{ marks})$$

Q12.

AtoZrevision.com

A number,  $y$ , is rounded to 2 significant figures. The result is 0.46

Write down the error interval for  $y$ .

$$\underbrace{0.455}_{B_1} \leq y < \underbrace{0.465}_{B_1} \quad (2 \text{ marks})$$

Q13.

AtoZrevision.com

Kiera used her calculator to work out the value of a number  $x$ .

She wrote down the first two digits of the answer on her calculator.

She wrote down 7.3. Write down the error interval for  $x$ .

$$\underbrace{7.3}_{B_1} \leq x < \underbrace{7.4}_{B_1} \quad (2 \text{ marks})$$