

GCSE MATHS • GRADE 3

MATHS



MODEL ANSWERS

ERROR INTERVALS

SCORE

/92

PERCENTAGE

%

STEM UP

- 1 The weight of a bag of potatoes is 81 kg, correct to the nearest kilogram.

(a) Write down the least possible weight of the bag of potatoes.

(b) Write down the greatest possible weight of the bag of potatoes.

half of 1 = 0.5, so subtract and add it

(a) 80.5 kg (b) 81.5 kg

1 / 1

- 2 The length of a plank of wood is 7 metres, correct to the nearest metre.

Write down the error interval for the length, l , in metres.

subtract and add half of 1

$6.5 \leq l < 7.5$

1 / 1

- 3 The weight of a bag of potatoes is 250 kg, correct to the nearest kilogram.

(a) Write down the least possible weight of the bag of potatoes.

(b) Write down the greatest possible weight of the bag of potatoes.

half of 1 = 0.5, so subtract and add it

(a) 249.5 kg (b) 250.5 kg

1 / 1

- 4 The length of a garden is 100 metres, correct to the nearest 10 metres.
Write down the error interval for the length, l , in metres.

subtract and add half of 10

$$95 \leq l < 105$$

/ 1

- 5 A number y is rounded to 1 decimal place.
The result is 14.7.
Write down the error interval for y .

half of 0.1... : subtract and add 0.05

$$14.65 \leq y < 14.75$$

/ 1

- 6 The height of a building is 4,100 m, correct to the nearest 10 m.
(a) Write down the least possible height of the building.
(b) Write down the greatest possible height of the building.

half of 10 = 5, so subtract and add it

$$(a) 4,095 \text{ m } (b) 4,105 \text{ m}$$

/ 1

- 7 The length of a plank of wood is 60 metres, correct to the nearest 10 metres.
Write down the error interval for the length, l , in metres.

subtract and add half of 10

$$55 \leq l < 65$$

/ 1

- 8 A number x is rounded to 1 decimal place.
The result is 2.1.
Write down the error interval for x .

half of 0.1... : subtract and add 0.05

$$2.05 \leq x < 2.15$$

/ 1

- 9 The weight of a bag of potatoes is 250 kg, correct to the nearest 5 kg.
(a) Write down the least possible weight of the bag of potatoes.
(b) Write down the greatest possible weight of the bag of potatoes.

half of 5 = 2.5, so subtract and add it

$$(a) 247.5 \text{ kg } (b) 252.5 \text{ kg}$$

/ 1

- 10 The length of a garden is 3 metres, correct to the nearest metre.

Write down the error interval for the length, l , in metres.

subtract and add half of 1

$$2.5 \leq l < 3.5$$

$\boxed{1} / 1$

- 11 A number y is rounded to 1 decimal place.

The error interval for y is $6.05 \leq y < 6.15$.

Write down the rounded value of y .

the rounded value is halfway between the two ends of the interval

$$6.1$$

$\boxed{1} / 1$

- 12 The length of a line is 620 cm, correct to the nearest 10 cm.

(a) Write down the least possible length of the line.

(b) Write down the greatest possible length of the line.

half of 10 = 5, so subtract and add it

$$(a) 615 \text{ cm } (b) 625 \text{ cm}$$

$\boxed{1} / 1$

- 13 The length of a plank of wood is 70 metres, correct to the nearest 10 metres.
Write down the error interval for the length, l , in metres.

subtract and add half of 10

$$65 \leq l < 75$$

/ 1

- 14 A number y is rounded to 2 decimal places.
The error interval for y is $6.595 \leq y < 6.605$.
Write down the rounded value of y .

the rounded value is halfway between the two ends of the interval

$$6.6$$

/ 1

- 15 The height of a building is 5.7 m, correct to the nearest 0.1 m.
(a) Write down the least possible height of the building.
(b) Write down the greatest possible height of the building.

half of 0.1 = 0.05, so subtract and add it

$$(a) 5.65 \text{ m } (b) 5.75 \text{ m}$$

/ 1

- 16** The length of a plank of wood is 30 metres, correct to the nearest 10 metres.
Write down the error interval for the length, l , in metres.

subtract and add half of 10

$$25 \leq l < 35$$

$\boxed{1}$ / 1

- 17** A number y is rounded to 1 decimal place.
The error interval for y is $2.25 \leq y < 2.35$.
Write down the rounded value of y .

the rounded value is halfway between the two ends of the interval

$$2.3$$

$\boxed{1}$ / 1

- 18** The weight of a bag of potatoes is 730 kg, correct to the nearest 10 kg.
(a) Write down the least possible weight of the bag of potatoes.
(b) Write down the greatest possible weight of the bag of potatoes.

half of 10 = 5, so subtract and add it

$$(a) 725 \text{ kg } (b) 735 \text{ kg}$$

$\boxed{1}$ / 1

- 19 The length of a plank of wood is 10 metres, correct to the nearest metre.
Write down the error interval for the length, l , in metres.

subtract and add half of 1

$$9.5 \leq l < 10.5$$

/ 1

- 20 A number x is rounded to 2 decimal places.
The result is 14.23.
Write down the error interval for x .

half of 0.01... : subtract and add 0.005

$$14.225 \leq x < 14.235$$

/ 1

- 21 A number x is rounded to 2 decimal places.
The error interval for x is $8.355 \leq x < 8.365$.
Write down the rounded value of x .

the rounded value is halfway between the two ends of the interval

$$8.36$$

/ 2

- 22 The length of a plank of wood is 6.3 metres, correct to the nearest 0.1 metre.
Write down the error interval for the length, l , in metres.

subtract and add half of 0.1

$$6.25 \leq l < 6.35$$

/ 2

- 23 A number y is truncated to 0 decimal places.
The result is 45.
Write down the error interval for y .

truncating removes the decimal part, so the number is at least 45 and less than 46

$$45 \leq y < 46$$

/ 2

- 24 A number x is rounded to 1 decimal place.
The error interval for x is $8.45 \leq x < 8.55$.
Write down the rounded value of x .

the rounded value is halfway between the two ends of the interval

$$8.5$$

/ 2

- 25 A number y is rounded to 2 decimal places.
The result is 14.9.
Write down the error interval for y .

half of 0.01... : subtract and add 0.005

$$14.895 \leq y < 14.905$$

/ 2

- 26 A number y is rounded to 2 significant figures.
The result is 2.9.
Write down the error interval for y .

the last significant figure is worth 0.1, so go 0.05 either side

$$2.85 \leq y < 2.95$$

/ 2

- 27 A number x is rounded to 2 decimal places.
The error interval for x is $3.395 \leq x < 3.405$.
Write down the rounded value of x .

the rounded value is halfway between the two ends of the interval

$$3.4$$

/ 2

- 28 A number y is rounded to 2 decimal places.

The result is 3.14.

Write down the error interval for y .

half of 0.01... : subtract and add 0.005

$$3.135 \leq y < 3.145$$

/ 2

- 29 A number y is rounded to 2 significant figures.

The result is 2.

Write down the error interval for y .

the last significant figure is worth 0.1, so go 0.05 either side

$$1.95 \leq y < 2.05$$

/ 2

- 30 A number y is rounded to 2 decimal places.

The error interval for y is $19.605 \leq y < 19.615$.

Write down the rounded value of y .

the rounded value is halfway between the two ends of the interval

$$19.61$$

/ 2

- 31 A number y is rounded to 3 decimal places.
The result is 3.925.
Write down the error interval for y .

half of 0.001... : subtract and add 0.0005

$$3.9245 \leq y < 3.9255$$

2 / 2

- 32 A number x is rounded to 3 significant figures.
The result is 59.8.
Write down the error interval for x .

the last significant figure is worth 0.1, so go 0.05 either side

$$59.75 \leq x < 59.85$$

2 / 2

- 33 k is an integer.
 k rounded to the nearest 5 is 20.
(a) Write down the smallest possible value of k .
(b) Write down the largest possible value of k .

the interval is $17.5 \leq k < 22.5$, and k is an integer

$$(a) 18 (b) 22$$

2 / 2

- 34 A number n is rounded to 2 significant figures.
The result is 0.79.
Write down the error interval for n .

*the last significant figure is worth 0.01
go 0.005 either side: $0.79 - 0.005 = 0.785$ and
 $0.79 + 0.005 = 0.795$*

$$0.785 \leq n < 0.795$$

2 / 2

- 35 A number x is rounded to 2 significant figures.
The result is 6.5.
Write down the error interval for x .

*the last significant figure is worth 0.1, so go
0.05 either side*

$$6.45 \leq x < 6.55$$

2 / 2

- 36 m is an integer.
 m rounded to the nearest 100 is 700.
(a) Write down the smallest possible value of m .
(b) Write down the largest possible value of m .

the interval is $650 \leq m < 750$, and m is an integer

$$(a) 650 \quad (b) 749$$

2 / 2

- 37 A number n is rounded to 2 significant figures.
The result is 0.48.
Write down the error interval for n .

*the last significant figure is worth 0.01
go 0.005 either side: $0.48 - 0.005 = 0.475$ and
 $0.48 + 0.005 = 0.485$*

$$0.475 \leq n < 0.485$$

2 / 2

- 38 A number y is truncated to 1 decimal place.
The result is 2.3.
Write down the error interval for y .

*truncating just removes digits, so add one unit
of the last digit*

$$2.3 \leq y < 2.4$$

2 / 2

- 39 n is an integer.
 n rounded to the nearest 10 is 60.
(a) Write down the smallest possible value of n .
(b) Write down the largest possible value of n .

the interval is $55 \leq n < 65$, and n is an integer

$$(a) 55 (b) 64$$

3 / 3

- 40 A number y is rounded to 3 significant figures.
The result is 0.273.
Write down the error interval for y .

the last significant figure is worth 0.001, so go 0.0005 either side

$$0.2725 \leq y < 0.2735$$

3 / 3

- 41 A number x is truncated to 1 decimal place.
The result is 1.8.
Write down the error interval for x .

truncating just removes digits, so add one unit of the last digit

$$1.8 \leq x < 1.9$$

3 / 3

- 42 n is an integer.
 n rounded to the nearest 5 is 25.
(a) Write down the smallest possible value of n .
(b) Write down the largest possible value of n .

the interval is $22.5 \leq n < 27.5$, and n is an integer

$$(a) 23 \quad (b) 27$$

3 / 3

- 43 A number x is rounded to 2 significant figures.
The result is 590.
Write down the error interval for x .

the last significant figure is worth 10, so go 5 either side

$$585 \leq x < 595$$

3 / 3

- 44 A number x is truncated to 2 decimal places.
The result is 1.41.
Write down the error interval for x .

truncating just removes digits, so add one unit of the last digit

$$1.41 \leq x < 1.42$$

3 / 3

- 45 A number x is truncated to 1 significant figure.
The result is 30.
Write down the error interval for x .

truncating just removes digits, so add one unit of the last significant figure (10)

$$30 \leq x < 40$$

3 / 3

- 46 A number y is rounded to 2 significant figures.
The result is 4,300.
Write down the error interval for y .

the last significant figure is worth 100, so go 50 either side

$$4,250 \leq y < 4,350$$

3 / 3

- 47 A number y is truncated to 2 decimal places.
The result is 19.58.
Write down the error interval for y .

truncating just removes digits, so add one unit of the last digit

$$19.58 \leq y < 19.59$$

3 / 3

- 48 A number x is truncated to 1 significant figure.
The result is 0.6.
Write down the error interval for x .

truncating just removes digits, so add one unit of the last significant figure (0.1)

$$0.6 \leq x < 0.7$$

3 / 3

- 49 A number x is truncated to 1 decimal place.

The result is 14.1.

Write down the error interval for x .

truncating just removes digits, so add one unit of the last digit

$$14.1 \leq x < 14.2$$

3 / 3

- 50 A number x is truncated to 1 decimal place.

The result is 1.4.

Write down the error interval for x .

truncating just removes digits, so add one unit of the last digit

$$1.4 \leq x < 1.5$$

3 / 3