

GCSE MATHS

Number essentials

Worked Solutions

Q1

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$$5.072 \rightarrow 5.027$$

Swap the digits in the hundredths and thousandths places.

$$5.072 - 5.027 = 0.045$$

The new number is smaller, so this is the decrease.

Q2

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$$0.0048 \times 1000 = 4.8$$

Every digit moves three places left.

Q3

*

$$-3.2 < -3.12 < -3.02 < -2.99$$

More negative values come first.

Q4

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$$(-4.8 + 1.6)/2 = -3.2/2 = -1.6$$

Average the two endpoints.

Q5

**

$$2057$$

The first digit cannot be zero; put 2 first, then the remaining digits in order.

Q6

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$$0.742$$

Only 0 can be the units digit. Put the fractional digits in descending order.

Q7

*

$$7.060 - 2.875 = 4.185$$

Align the decimal places.

Q8

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$$36 \times 45 = 1620$$

Multiply the whole numbers.

$$3.6 \times 0.45 = 1.620$$

Restore three decimal places.

Q9

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$$5.04/0.07 = 504/7 = 72$$

Multiply both values by 100, then divide.

Q10

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$$-7 + 12 = 5$$

A rise is an addition.

Q11

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$$-18 + 7 - 5 = -16$$

Subtracting a negative adds its opposite.

Q12

**

$$-3 + 8 - 11 = -6$$

Add for each rise and subtract for each drop.

Q13

**

$$16 - 16 = 0$$

The brackets include the negative sign in the first square.

Q14

**

$$-9 - 27 = -36$$

The first minus is outside the square.

Q15

**

$$14 + (-5) = 9$$

Use the positive square root and the signed cube root.

Q16

**

$$8 \times 2 + 9 = 25$$

Division and multiplication run from left to right.

Q17

$$(18 - 6)/3 = 12/3 = 4$$

Subtract before dividing.

Q18

$$12^2 = 144$$

$$13^2 = 169$$

$$n = 13$$

Compare consecutive squares.

It is the first positive integer above the boundary.

Q19

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$$0.007846 \approx 0.0078$$

The significant digits begin at 7; the next digit is 4.

Q20

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$$39950 \approx 40000$$

The third significant digit is 9, so round upward.

Q21

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$$\frac{40 \times 0.2}{2} = 4$$

Round first, then calculate.

Q22

$$475 \leq n < 485$$

$$450 \leq n < 550$$

$$n = 484$$

Numbers that round to 480.

Numbers that round to 500.

Take the greatest integer in the overlap.

Q23

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$$187/16 = 11.6875$$

Find the number of busloads.

12 minibuses

Round up because everyone needs a seat.

Q24

$$13 \times 14 = 182$$

Locate the lower boundary.

$$14 \times 15 = 210$$

$$15 \times 16 = 240$$

The upper boundary is excluded.

(14, 15)

Only this pair has product strictly between the bounds.