AQA - Numbers – GCSE Mathematics Paper-2

1. May/2020/Paper_2F/No.8

(a)   Write down an even whole number that is also a square number.

[1 mark]

Answer _____

(b)   Write down **all** the cube numbers between 100 and 400

[2 marks]

_____

_____

_____

Answer _____

(c)   Write down **two** numbers that
        are multiples of 3
        and
        multiply to make 216

[1 mark]

_____

_____

_____

_____

_____

Answer _____ and _____
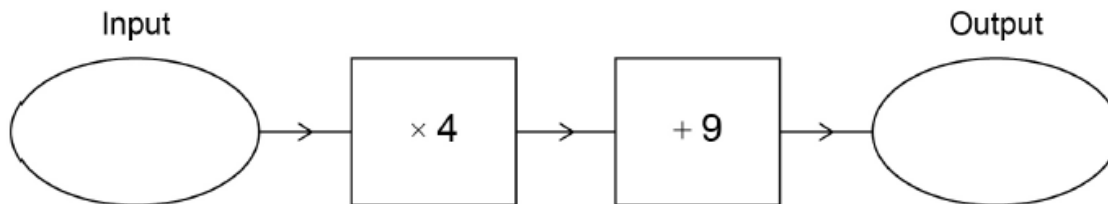
2.   May/2020/Paper_2F/No.10

(a)   Here is a number machine.

Input   Output

× 4   + 9

Work out the output when the input is 16

[1 mark]

_____

Answer _____

(b)   Here is a different number machine.

Input   Output

+ 6   ÷ 2
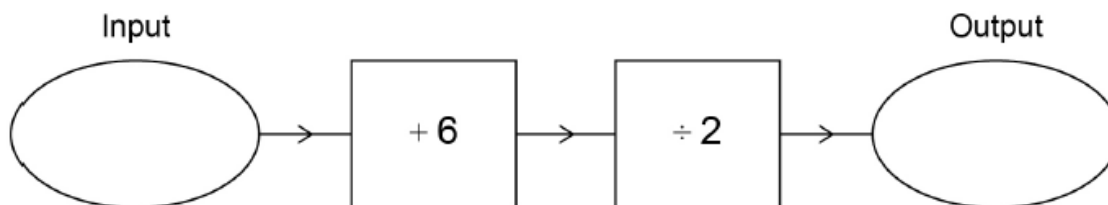
Work out the output when the input is –48

[1 mark]

_____

Answer _____

(c)   Complete this number machine.

[1 mark]

Input

$$5$$

$$\times \underline{\quad}$$

$$- 10$$

Output

$$5$$
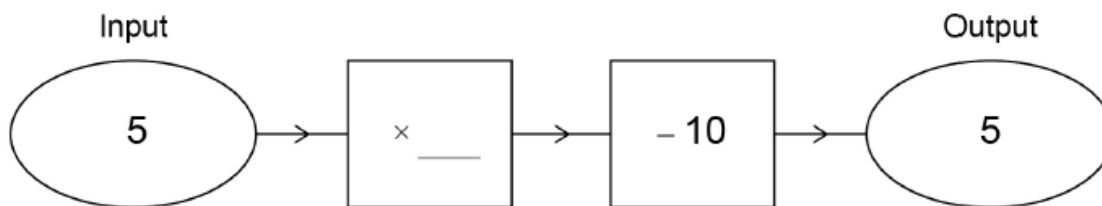
3.   May/2020/Paper_2F/No.11

Here are two calculations.

A
$17^2 - 300$

B
$47 \times 21 - 10^3$

Which calculation has the smaller answer?

You **must** show the answer to each calculation.

[2 marks]

_____

_____

_____

_____

_____

Answer _____

3

4.

Jenny works for 30 hours and is paid £318

Calvin works for 28 hours and is paid £287

Jenny is paid more per hour than Calvin.

How much more?

[3 marks]

_____

_____

_____

_____

_____

_____

Answer _____ pence

5. May/2020/Paper_2F/No.15

Mortar is made by mixing cement and sand as shown.

> For every 1 kg of cement used, add 4 kg of sand

Cement costs £0.19 per kg

Sand costs £0.07 per kg

Tomasz uses 150 kg of cement to make some mortar.

Work out the total cost of the mortar.

[3 marks]

Answer £ _____

6. May/2020/Paper_2F/No.18

Kim buys pet food in 1.5 kg packs.

Her pet needs 0.8 kg of food each week.

She wants to have enough food for the next 14 weeks.

She already has two 1.5 kg packs.

Work out the smallest number of packs she needs to buy.

You **must** show your working.

[4 marks]

Answer _____

7. May/2020/Paper_2F/No.24

Work out the highest common factor (HCF) of 75 and 105

[2 marks]

Answer _____

8. May/2020/Paper_2H/No.3

Circle the number that is written in standard form.

[1 mark]

$$0.9 \times 10^{-3} \qquad 6 \times 10^{0.5} \qquad 5.2 \times 10^{-4} \qquad 12 \times 10^{7}$$

9. May/2020/Paper_2H/No.6

Work out the highest common factor (HCF) of 75 and 105

[2 marks]

Answer _____

10. May/2020/Paper_2H/No.26

Edith's van can safely carry a maximum load of 920 kilograms.

She wants to use her van to carry

30 sacks of potatoes, each of mass 25 kilograms to the nearest kilogram

and

20 sacks of carrots, each of mass 7.5 kilograms to 1 decimal place.

Can she definitely use her van safely in one journey?

You **must** show your working.

[4 marks]

11.

Circle the number that is one **less** than a cube number.

[1 mark]

20   22   24   26

11.

12. June/2019/Paper_2F/No.6

(a) Use your calculator to work out $\dfrac{9.75^3}{1.875} + 6.4^2$

Give your answer as a decimal.
Write down your full calculator display.

[2 marks]

_____

_____

_____

Answer _____

(b) Is your answer to part (a) sensible?

Check by rounding each of 9.75, 1.875 and 6.4 to the nearest whole number.
You **must** show your working.

[3 marks]

_____

_____

_____

_____

_____

_____

Tick a box.

☐ Sensible   ☐ Not sensible

13. June/2019/Paper_2F/No.7

Complete the bank statement.

[3 marks]

Date	Description	Credit (£)	Debit (£)	Balance (£)
01/04/2019	Starting balance			_____
05/04/2019	Council tax		189.34	72.09
10/04/2019	Refund	_____		86.75
12/04/2019	Salary	1430.29		_____

14. June/2019/Paper_2F/No.9
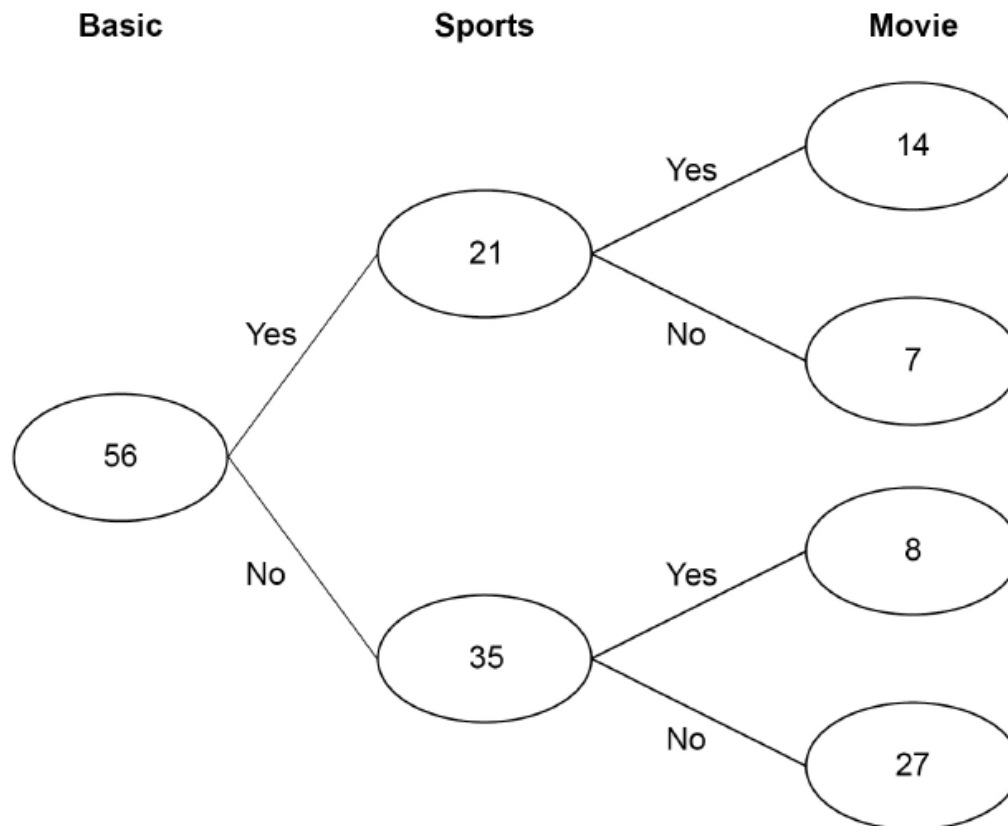
56 customers pay for satellite television.

They **all** have the Basic package for £24.50 per month.

Some also have

the Sports package for £27.50 extra per month

the Movie package for £18 extra per month.

The frequency tree shows the number of customers with each package.

In total, how much per month do the 56 customers pay?

[4 marks]

Answer £_____

15. June/2019/Paper_2F/No.10

Zoe is thinking of a number.

$$\frac{3}{10} \text{ of } 90 = \frac{1}{2} \text{ of her number}$$

What number is she thinking of?

[3 marks]

Answer _____

16. June/2019/Paper_2H/No.2

The height of a tree is 12 metres, correct to the nearest metre.
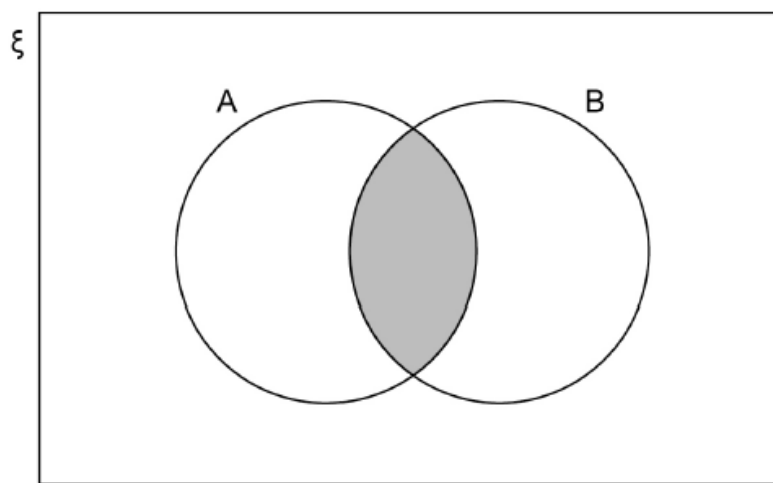
Circle the error interval.

[1 mark]

$11.5 \text{ m} \leqslant \text{height} < 12.5 \text{ m}$ $11.5 \text{ m} \leqslant \text{height} \leqslant 12.5 \text{ m}$

$11.5 \text{ m} < \text{height} \leqslant 12.5 \text{ m}$ $11.5 \text{ m} < \text{height} < 12.5 \text{ m}$

17. June/2019/Paper_2H/No.4

Which of these represents the shaded region?

Circle your answer.

[1 mark]

$A \cup B$ $(A \cap B)'$ $A \cap B$ $A' \cup B'$

18. June/2019/Paper_2H/No.6

Beth drives 200 miles in 4 hours.

She drives the first 18 miles at an average speed of 36 mph

Work out her average speed for the rest of the journey.

[3 marks]

Answer _____ mph

19. June/2019/Paper_2H/No.22

Show that $(5\sqrt{3} - \sqrt{12})^2$ simplifies to an integer.

[3 marks]

_____

_____

_____

_____

_____

_____

_____

_____

20. Nov/2019/Paper_2F/No.2

Which of these numbers is three less than a square number?

Circle your answer.

[1 mark]

5	19	22	34

21. Nov/2019/Paper_2F/No.3

Circle the length of time between 1.50 pm and 3.35 pm

[1 mark]

1 h 45 min	2 h 15 min	2 h 25 min	3 h 5 min

22. Nov/2019/Paper_2F/No.8

The cost of a taxi journey is

£3   plus   £2 per mile.

Circle the cost of a journey of 6 miles.

[1 mark]

£5	£12	£15	£30

23. Nov/2019/Paper_2F/No.11

$c = 250 - 16^2$

$d = \dfrac{18 \times 14}{-28}$

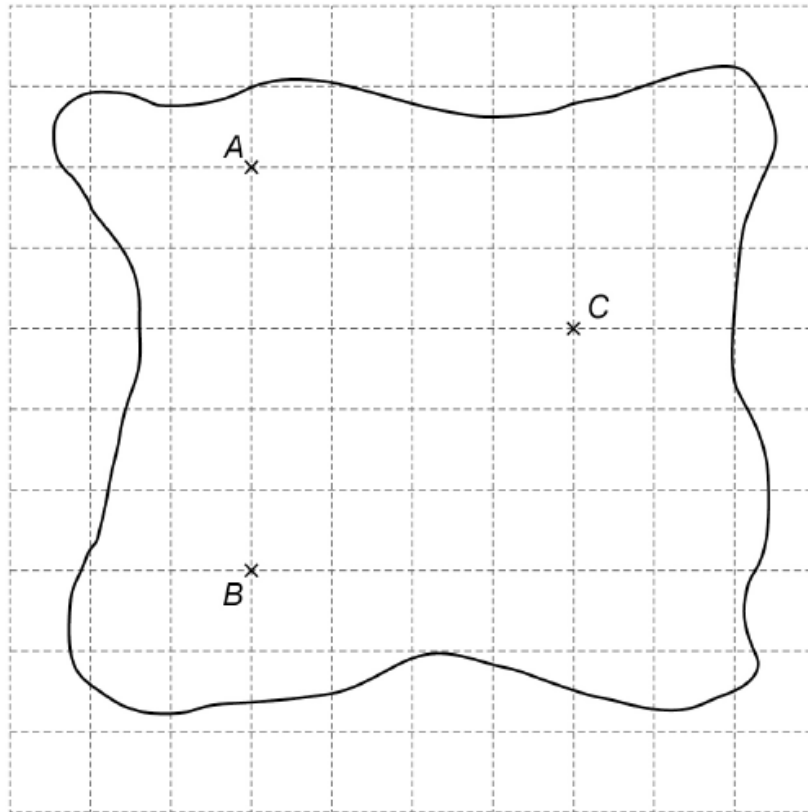Work out the value of $c \times d$

[2 marks]

_____

_____

_____

_____

Answer _____

24. Nov/2019/Paper_2F/No.20

A map of an island is shown on a centimetre grid.

A, B and C are houses.

(a) The actual distance between A and B is 1500 metres.

Show that the scale on the map is   1 : 30 000

[2 marks]

_____

_____

_____

_____

(b) Work out the actual distance between *A* and *C*.

Give your answer in kilometres.

[4 marks]

Answer _____ km

25. Nov/2019/Paper_2F/No.24

Work out the lowest common multiple (LCM) of 120 and 144

[2 marks]

Answer _____

26. Nov/2019/Paper_2F/No.26

A car journey is in two stages.

Stage 1   The car travels 110 miles in 2 hours.

Stage 2   The car travels 44 miles at the same average speed as Stage 1

Work out the time for Stage 2

Give your answer in minutes.

[3 marks]

Answer _____ minutes

27. Nov/2019/Paper_2H/No.5

Work out the lowest common multiple (LCM) of 120 and 144

[2 marks]

_____

_____

_____

_____

Answer _____

28. Nov/2019/Paper_2H/No.7

A car journey is in two stages.

Stage 1   The car travels 110 miles in 2 hours.

Stage 2   The car travels 44 miles at the same average speed as Stage 1

Work out the time for Stage 2

Give your answer in minutes.

[3 marks]

_____

_____

_____

_____

_____

Answer _____ minutes