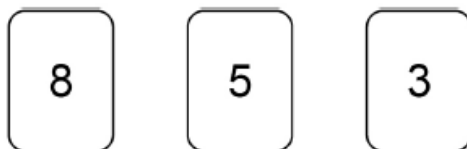## AQA - Numbers – GCSE Mathematics Paper-3

1.   May/2020/Paper_3F/No.5

Here are three number cards.

| 8 | 5 | 3 |

(a)   Use all three cards to make the answer to this calculation a multiple of 10

[1 mark]

☐☐ × ☐

(b)   Use all three cards to make the answer to this calculation a single-digit number.

[1 mark]

☐ × ☐ − ☐

(c)   Use all three cards to make this a correct calculation.

[1 mark]

$$\frac{\boxed{6} + \boxed{}}{\boxed{} + \boxed{}} = 1$$

2. May/2020/Paper_3F/No.9
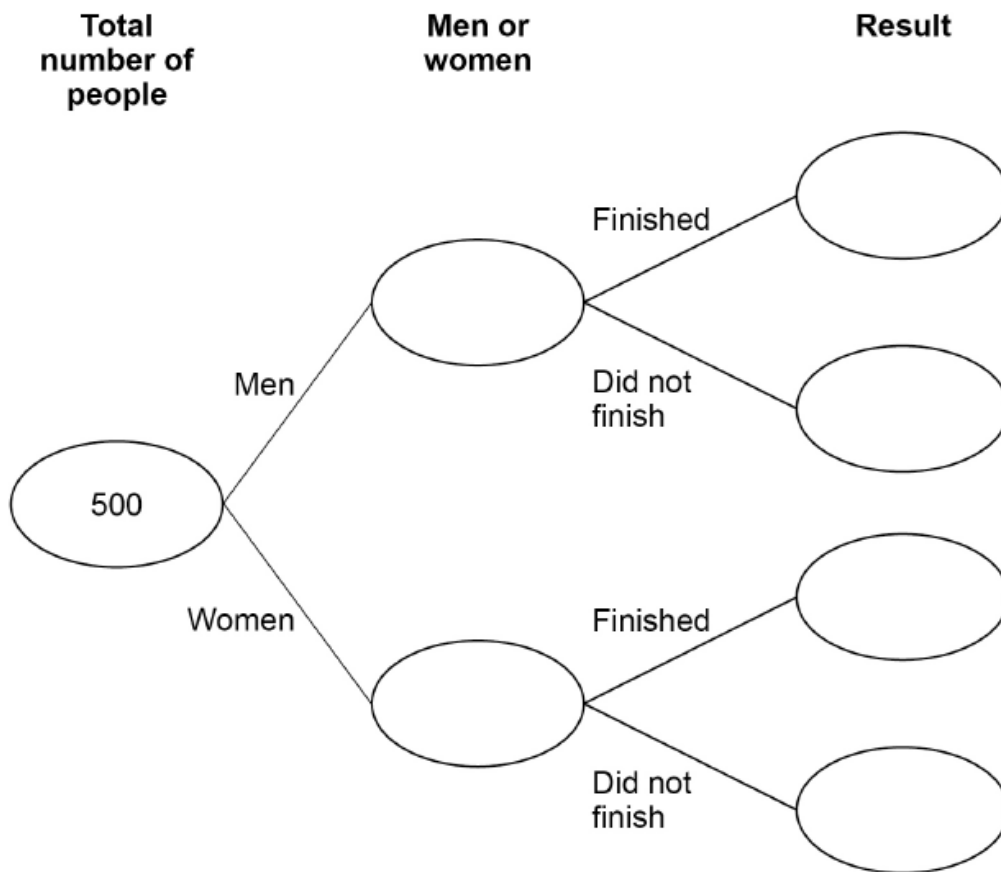
500 people started a race.

280 were men and the rest were women.

80% of the men finished the race.

30 women did **not** finish the race.

Complete the frequency tree.

[5 marks]

Total number of people	Men or women	Result

Men / Finished

500

Women / Did not finish

Finished

Did not finish

3. May/2020/Paper_3F/No.10

Put these three distances in order of size.

1.8 kilometres   1600 metres $1\frac{3}{4}$ kilometres

Start with the shortest.

[2 marks]

_____

_____

_____

Shortest distance _____

_____

Longest distance _____

3. May/2020/Paper_3F/No.10

4. May/2020/Paper_3F/No.14

Here are ticket prices for a theme park.

Single tickets

Adult £48   Child £26

Special offer tickets

1 adult and 2 children   £82

2 adults and 2 children   £120

(a)   Freya buys tickets for 3 adults and 4 children.

She pays the cheapest possible total cost.

How much does she save compared to buying all single tickets?

[4 marks]

Answer   £ _____

(b)   Leroy buys 5 single adult tickets.

He uses a voucher that reduces the price of tickets by a quarter.

In total, how much does he pay?

[3 marks]

_____

_____

_____

_____

_____

Answer   £ _____

5. May/2020/Paper_3F/No.16(b),(c)

In the formula $y = 3.6x$

y is speed in kilometres per hour (km/h)

x is speed in metres per second (m/s)

(b) Convert 50 km/h to m/s

Give your answer to the nearest whole number.

[1 mark]

_____

_____

Answer _____ m/s

(c) Convert 30 m/s to miles per hour.

Use   1 mile per hour = 1.61 km/h

[3 marks]

_____

_____

_____

_____

Answer _____ miles per hour

6. May/2020/Paper_3F/No.20

To the nearest 1000, there are 18 000 people at a festival.

(a) Write down the minimum possible number of people at the festival.

[1 mark]

Answer _____

(b) Write down the maximum possible number of people at the festival.

[1 mark]

Answer _____

6. May/2020/Paper_3F/No.20

7. May/2020/Paper_3H/No.1

What does   A U B   represent in   P(A U B) ?

Circle your answer.

[1 mark]

A or B or both   A but not B

not A and not B   A and B

8. May/2020/Paper_2H/No.18

The pressure in a tyre is 30 pounds per square inch.

Convert the pressure into kilograms per square centimetre.

> Use   1 pound = 0.45 kilograms
>
> and
>
> 1 inch = 2.54 centimetres

[3 marks]

_____

_____

_____

_____

_____

_____

_____

Answer _____ kg/cm^2

9. May/2020/Paper_3H/No.26

Prove algebraically that $\quad 3.4\dot{7} = \dfrac{313}{90}$

[3 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

9. May/2020/Paper_3H/No.26

Prove algebraically that $\quad 3.4\dot{7} = \dfrac{313}{90}$

10

10. June/2019/Paper_3F/No.3

Circle the fraction that is equal to $2\frac{1}{4}$

[1 mark]

$$\frac{7}{4} \qquad\qquad \frac{9}{4} \qquad\qquad \frac{21}{4} \qquad\qquad \frac{25}{4}$$

11. June/2019/Paper_3F/No.6

Josh downloads album A.

A has 11 tracks.

Each track on A costs the same.

The total cost of downloading A is £8.80

Josh also downloads album B.

B has 14 tracks.

(a) Work out the total cost of downloading B.

Assume each track costs the same as a track on A.

[3 marks]

_____

_____

_____

_____

_____

_____

Answer £_____

(b) In fact, compared to the cost of each track on A

the cost of 6 tracks on B is **more** by 5p each

the cost of 8 tracks on B is **less** by 5p each.

What does this tell you about your answer to part (a)?

Tick **one** box.

☐   The total cost is **less** than my answer to part (a)

☐   The total cost is **more** than my answer to part (a)

☐   The total cost is **the same** as my answer to part (a)

Give a reason for your decision.

[2 marks]

_____

_____

_____

_____

12. June/2019/Paper_3F/No.8

Four positive whole numbers add up to 84

One of the numbers is a multiple of 17

The other three numbers are equal.

What are the four numbers?

[3 marks]

Answer _____ _____ _____ _____

13. June/2019/Paper_3F/No.13

Write down **all** the prime numbers between 40 and 50

[2 marks]

Answer _____

14. June/2019/Paper_3F/No.16

Which shape **must** have rotational symmetry?

Circle your answer.

[1 mark]

isosceles triangle   trapezium   kite   parallelogram

15.

In one hour a machine can make

      600 nuts

      or

      720 bolts.

At 3 pm the machine starts working.

It makes 900 nuts and then changes to making bolts.

How many **bolts** will the machine make by 8 pm?

[4 marks]

Answer _____

16. June/2019/Paper_3H/No.3

Circle the lowest common multiple (LCM) of 5, 15 and 25

[1 mark]

5   45   75   150

17. Nov/2019/Paper_3F/No.3

Which two numbers, when added together, make a cube number?

Circle your answer.

[1 mark]

1 and 8   2 and 4   9 and 18   8 and 64

18. Nov/2019/Paper_3F/No.4

Convert $2\frac{1}{2}$ kilograms into grams.

Circle your answer.

[1 mark]

25 grams   250 grams   2500 grams   25 000 grams

19. Nov/2019/Paper_3F/No.8

Write down **all** the whole numbers that

are between 20 and 50

and

have a difference of 4 between their digits.

[2 marks]

_____

_____

_____

Answer _____

20. Nov/2019/Paper_3F/No.12

A bottle contains 1.5 litres of water.

650 millilitres of the water is poured into a jug.

How much water is left in the bottle?

State the units of your answer.

[3 marks]

_____

_____

_____

_____

Answer _____

21. Nov/2019/Paper_3F/No.15

The table shows the cost of hiring a concrete mixer for up to 5 days.

Number of days	1	2	3	4	5
Cost	£14	£24	£34	£44	£54

Eva hires the concrete mixer for 5 days.

She says,

"The rate is £14 per day because the cost for 1 day is £14"

Is she correct?

Give a reason for your answer.

[2 marks]

_____

_____

_____

22. Nov/2019/Paper_3F/No.16

x is a **negative** number.

Which statement is correct?

Tick **one** box.

[1 mark]

☐	$x + 10$ is always positive
☐	$x + 10$ is always negative
☐	$x + 10$ cannot be zero
☐	$x + 10$ could be positive or negative or zero

23.   Nov/2019/Paper_3H/No.6

(a)   Tom is tiling a wall.

He needs to buy at least 100 tiles.

The tiles are sold in large packs and small packs.

Large pack   40 tiles   £18
Small pack   28 tiles   £14

Special offer

25% reduction when you buy 3 or more **large** packs

Work out the cheapest cost for Tom to buy the packs of tiles he needs.

[3 marks]

Answer   £_____

20

(b) Tom is also tiling a floor.

The floor is a rectangle with length 600 cm and width 240 cm
Each tile is a square with side 40 cm

Tom uses this method to work out the number of tiles he needs.

Number of tiles that will fit along the length	=	$600 \div 40$
	=	15
Number of tiles that will fit along the width	=	$240 \div 40$
	=	6
Total number of tiles needed	=	$15 + 6$
	=	21

Give a reason why Tom's method is wrong.

[1 mark]

_____

_____

24.   Nov/2019/Paper_3H/No.16

A building company employs

2 labourers

14 joiners

9 electricians

8 plumbers.

For a job, the company needs one of each type of worker.

(a)   In how many ways can the company choose the four workers?

[2 marks]

Answer _____

(b)   One labourer and two plumbers are on holiday.

In how many ways can the company now choose the four workers?

[2 marks]

Answer _____