Centre Number

Candidate Number

Surname _____

Forename(s) _____

Signature _____

GCSE
MATHEMATICS

F

Foundation Tier   Paper 3 Calculator Allowed

Monday 13 June 2022   Morning   Time allowed: 1 hour 30 minutes

Student Self Reflection

Topics I need to *revise*

Topics I need to *learn*

Silly Mistakes?

Target mark for next time

For teacher use	
Pages	Mark
2-3	
4-5	
6-7	
8-9	
10-11	
12-13	
14-15	
16-17	
18-19	
20-21	
22-23	
TOTAL	

Answer **all** questions in the spaces provided.

1   Circle the value of the digit 7 in the number 2741.5

[1 mark]

70   700   7000   70000

2   Circle the fraction which is equal to 60%

[1 mark]

$\dfrac{3}{5}$ $\dfrac{1}{60}$ $\dfrac{1}{40}$ $\dfrac{3}{20}$

3   Convert $5\dfrac{1}{2}$ metres into centimetres.

Circle your answer.

[1 mark]

5.5 cm   55 cm   550 cm   5500 cm

Video Solutions

4   Work out $\left(\dfrac{3^2}{10}\right)^3$

Circle your answer.

[1 mark]

0.027   0.729   0.9   656.1

5   Work out how many seconds there are in 12 hours.

[2 marks]

Answer _____ seconds

6

Turn over ▶

© 1stclassmaths   Video Solutions

6 The table show information about how people travel to school.

Travel Method	Frequency
Walk	12
Bike	14
Car	4
Bus	1

Draw a bar chart to show the information.

[3 marks]

Video Solutions

7   Here is a regular polygon.
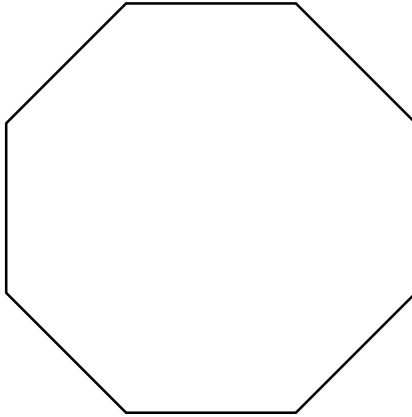
7 (a)   Write down the name of the regular polygon.   **[1 mark]**

Answer _____

7 (b)   Write down the order of rotational symmetry of the regular polygon.   **[1 mark]**

Answer _____

7 (c)   Draw all of the lines of symmetry onto the regular polygon.   **[1 mark]**
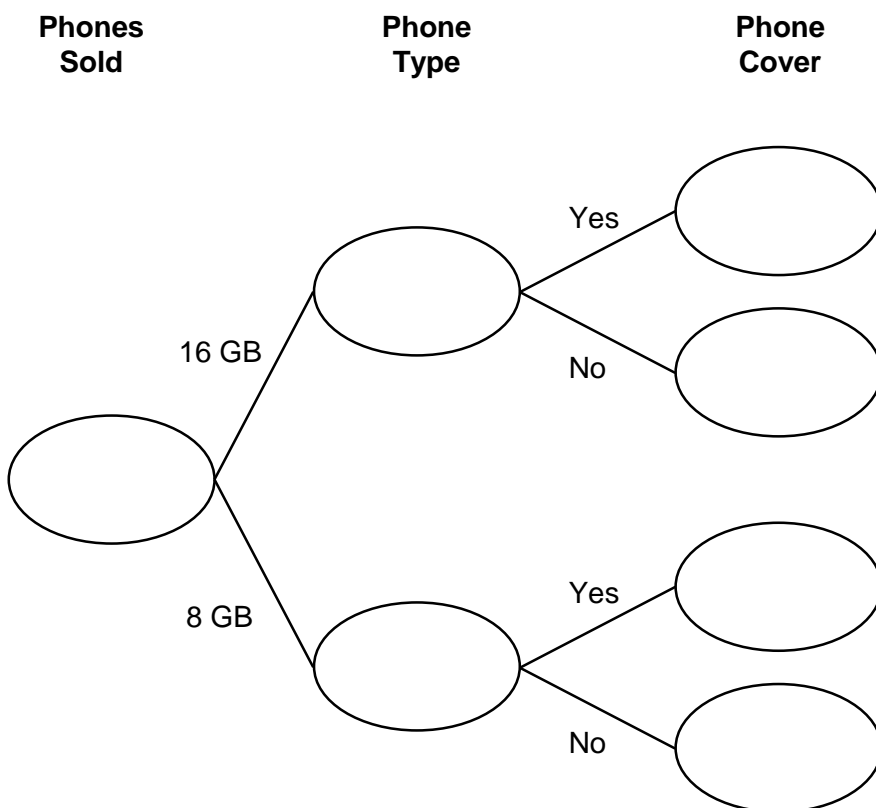
6

Turn over ►

Video Solutions

8   A company sells 16 GB and 8 GB mobile phones.

All customers are given the option to purchase a phone cover.

During one week the company sells:

52 of the 16 GB phones.

79 of the 8 GB phones.

60 phone covers.

Half of the customers who bought the 16 GB phone bought a phone cover.

8 (a)   Complete the frequency tree   **[4 marks]**

Phones Sold	Phone Type	Phone Cover

16 GB

8 GB

Yes

No

Yes

No

Video Solutions

8   The table below shows how much profit the company makes for each sale.

Phone	Profit
16 GB	£15
8 GB	£12.80

The company also makes 60p profit for each phone cover sold.

8 (b)   Calculate the total profit made by the phone company in this week.   **[3 marks]**

Answer £ _____

7

Video Solutions

9 **(a)**   Complete the number machine.   **[1 mark]**

Input   Output

x → [ ] → $\div 2$ → $\dfrac{x}{2} + 4$
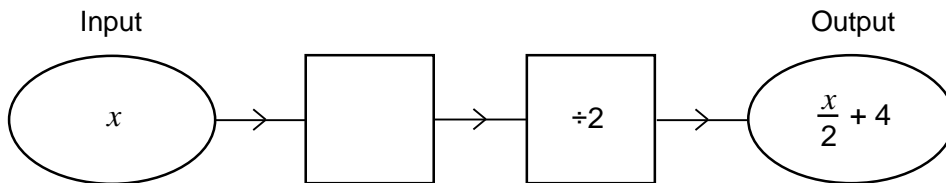
9 **(b)**   Write down the output y in terms of x.   **[1 mark]**

Input   Output

x → $\times 3$ → $- 5$ → y
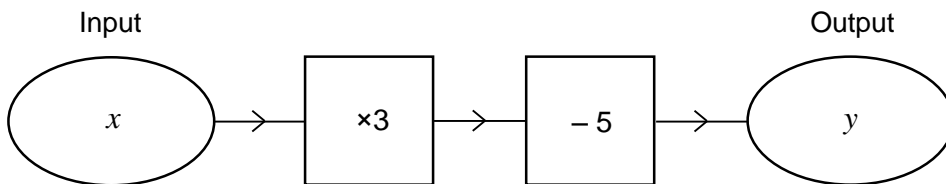
Answer _____

9 **(c)**   Here is another number machine.

Input   Output

x → $\times 5$ → $- 1$ → y
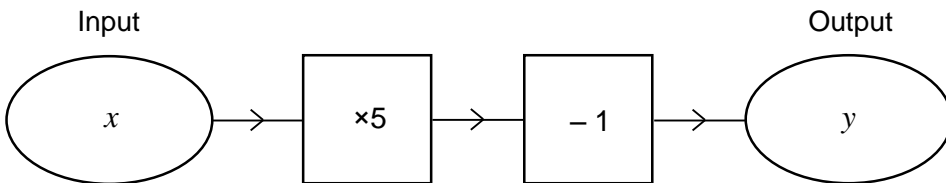
Jess thinks that the output for this number machine will always be positive.

Use an example to show that Jess is wrong.

[1 mark]

_____

_____

_____

_____

Video Solutions

10 Dave visits a snooker shop to test out some new snooker cues.

He practices with each cue and records his information in the table.

	Cue A	Cue B
Number of pots	23	36
Number of misses	27	44
Total Shots	50	80

10 (a) Write down an estimate for the probability that Dave pots a ball using cue A.

[1 mark]

Answer _____

10 (b) Write down an estimate for the probability that Dave pots a ball using cue B.

[1 mark]

Answer _____

10 (c) Which cue does Dave pot balls better with?

Tick one box

☐ Cue A

☐ Cue B

Give a reason for your answer.

[1 mark]

_____

_____

_____

6

Video Solutions

11   Simplify fully $6a^2 - 7a - a^2 + 3a$ **[2 marks]**

Answer _____

12   Dean thinks of a number.

His number is a factor of 200.

His number is also a multiple of 8.

Work out two possible numbers that Dean would be thinking of.   **[3 marks]**

Answer _____ and _____

Video Solutions

13 A bag contains only red, green and yellow counters.

The ratio of red, green and yellow counters is 2 : 6 : 5

Anja claims that there are 50 counters in the bag.

Show that Anja cannot be correct. **[2 marks]**

_____

_____

_____

_____

_____

_____

14 Here is a diagram with some angles labelled.

Lines PQ and RS are parallel.
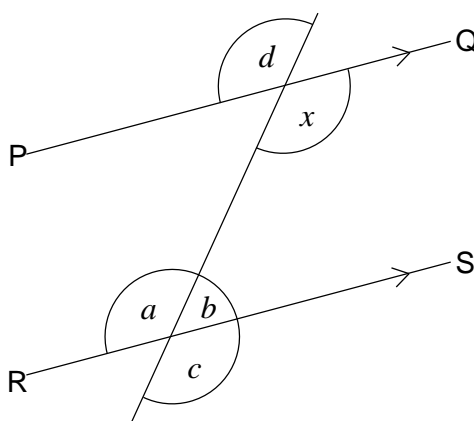
Circle the letter of the angle that is **alternate** to angle x. **[1 mark]**

a b c d

Video Solutions

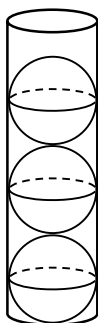*Do not write outside the box*

15 Lara collects marbles.

Each of her marbles is a sphere with radius 4 mm.

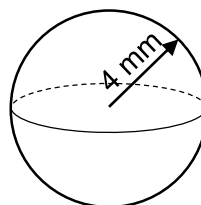Her marbles are stored in a cylindrical container with radius 4 mm.

Her current container has space for 3 marbles.

Marbles are stacked on one top of another as shown in the diagram below.

Marbles stacked in container

One marble

4 mm

Lara purchases a new container.

It has the same radius as her old container but the height is 15 cm.

Work out the maximum number of marbles Lara can stack in her new container.

[3 marks]

Answer _____

Video Solutions

16 Here is a formula for the price of a taxi

$$P = 2.50 + 1.85m$$

P is the price of the taxi in pounds.
m is the number of miles travelled

16 (a) How much does a 7 mile journey cost? **[2 marks]**

Answer £ _____

16 (b) A journey has a price of £41.35

Work out how long the journey is in miles. **[3 marks]**

Answer _____ miles

Video Solutions

17   Here is a compound shape.

Not drawn accurately

6 cm

3 cm

8 cm

11 cm

4 cm

8 cm
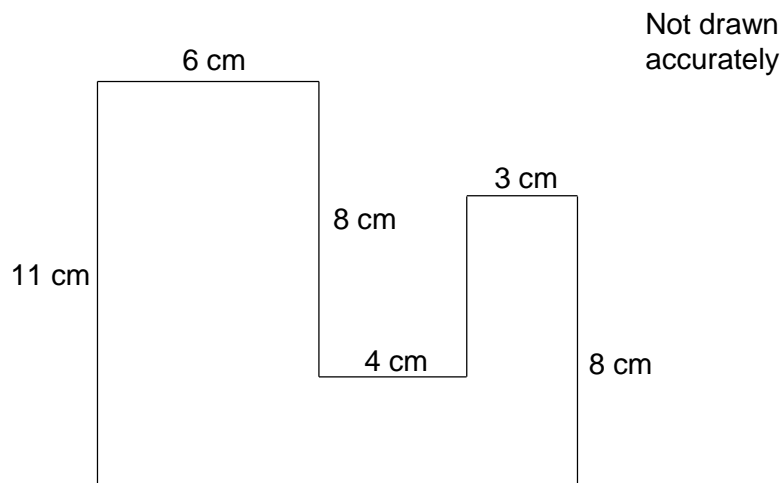
Work out the perimeter of the shape.

Give the units of your answer.   **[4 marks]**

Answer _____

Video Solutions

18 Use trigonometry to work out the value of x.
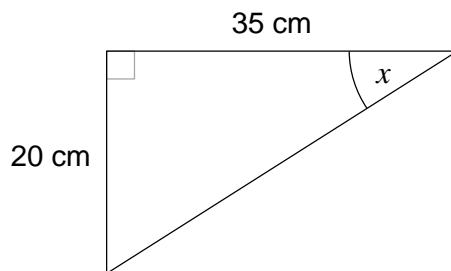
[2 marks]

_____

_____

_____

_____

_____

Answer _____ °

19 Here is a formula

$$a = 2t + k$$

[1 mark]

Circle the correct rearrangement to make t the subject.

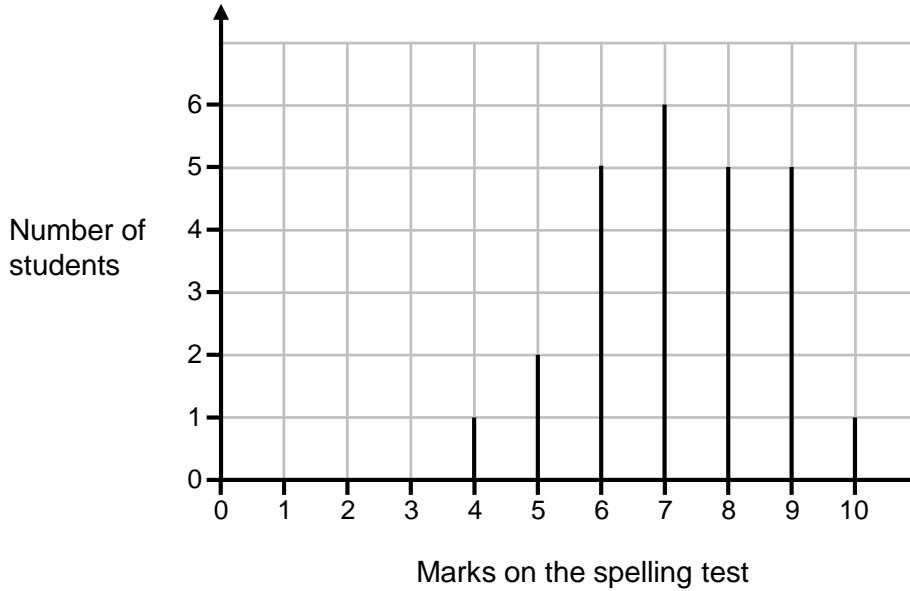$t = 2a + 2k$ $\qquad$ $t = \dfrac{a + k}{2}$ $\qquad$ $t = 2a - 2k$ $\qquad$ $t = \dfrac{a - k}{2}$

7

Video Solutions

20   A class of 25 students had a spelling test.

The maximum mark for the test was 10.

The chart represents the results.

Marks on the spelling test

20 (a)   Write down the modal mark for the spelling test.   **[1 mark]**

Answer _____

20 (b)   Work out the mean mark for the spelling test.   **[3 marks]**
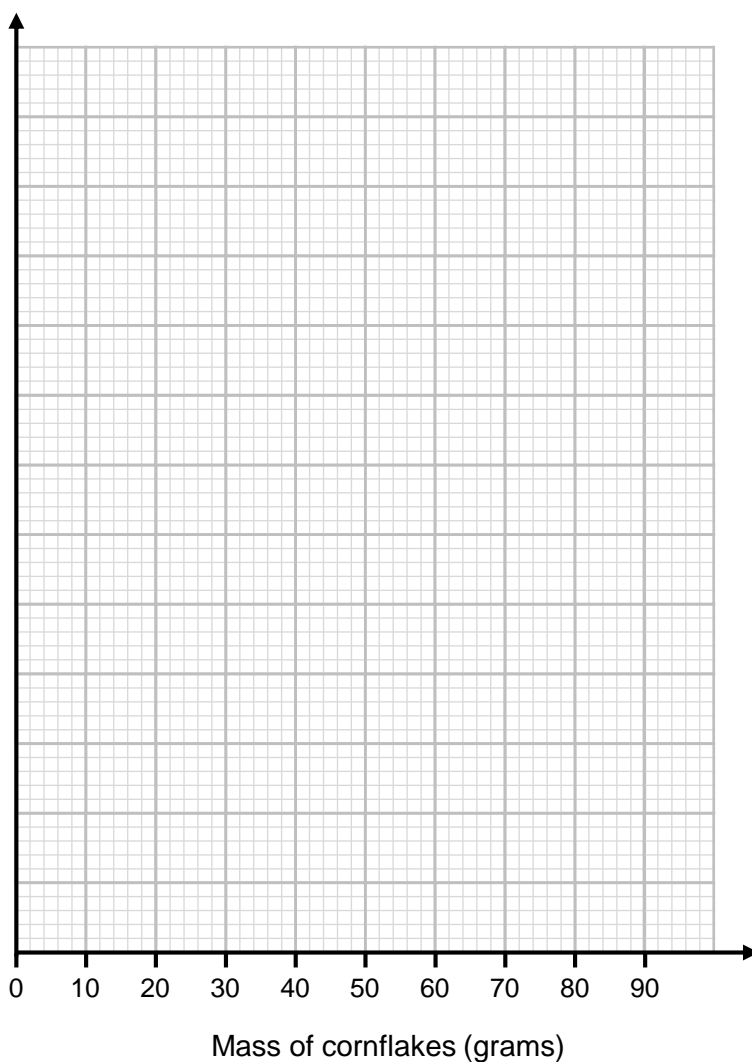
Answer _____

Video Solutions

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21 Cornflake cakes are made using cornflakes and chocolate.

The ratio of the mass of cornflakes to mass of chocolate required is 3 : 4

21 (a) Draw a graph that can be used to work out the mass of chocolate needed given the mass of cornflakes.

Your graph must show up to 90g of cornflakes. **[3 marks]**

Mass of cornflakes (grams)

21 (b) How many grams of chocolate are needed if the mass of cornflakes is 75g

[1 mark]

Answer _____ g

22 Work out the highest common factor (HCF) of 36 and 120 **[2 marks]**

Answer _____

23 A packet of crisps has a mass of 25 grams (to the nearest gram).

23 (a) Complete the error interval for the mass of the packet of crisps. **[2 marks]**

Answer _____ g ≤ mass < _____ g

A multipack of crisps contains 12 of the individual packets.

23 (b) Complete the error interval for the mass of the multipack of crisps. **[1 mark]**

Answer _____ g ≤ mass < _____ g

Video Solutions

24 (a)   The first two terms of a **geometric** progression are shown.

32   24   ………   ………

Work out the third and fourth terms.   **[2 marks]**

Third Term _____

Fourth Term _____

24 (b)   An **arithmetic** progression is shown below.

20   18   16   14   ……..

Work out the nth term.   **[2 marks]**

Answer _____

9

Turn over ►

Video Solutions

25 $\mathbf{a} = \begin{pmatrix} 7 \\ -3 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -3 \\ 6 \end{pmatrix}$

Work out $2\mathbf{a} + \mathbf{b}$ **[2 marks]**

Answer _____

26   Ryan and Amy share £315 in the ratio 4 : 5

[3 marks]

Work out how much money Ryan receives.

Answer £ _____

Video Solutions

27   The table below shows information about how students travel to school.

	Walk	Car	Other
2018		220	62
2019	114		48
Total	**246**		**110**

Between 2018 and 2019 the number of students coming by car increases by 30%

Complete the table.

[4 marks]

28   Here is the graph of $y = x^2 + 2x - 1$ for x values from -3 to 1
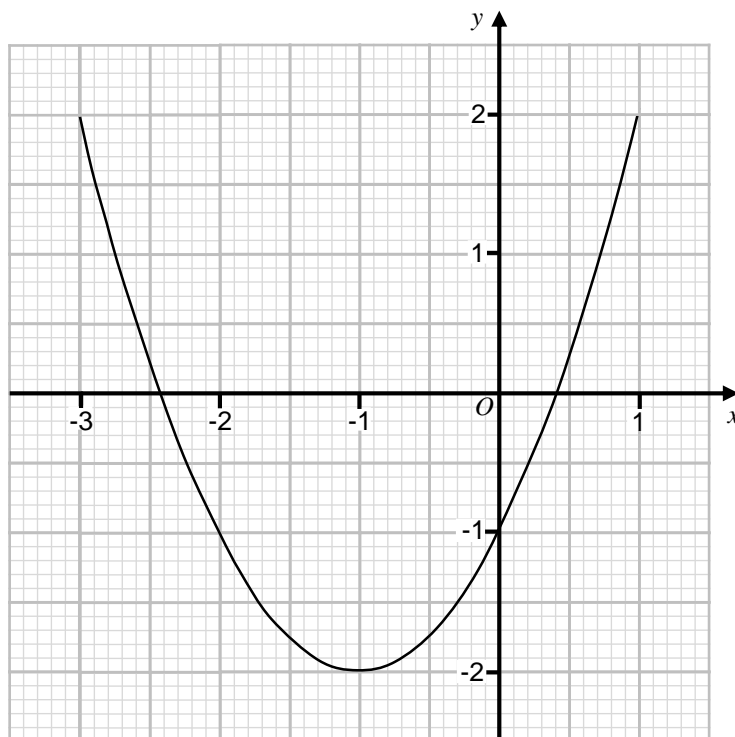
28 (a)   Write down the coordinates of the turning point of the graph.

[1 mark]

Answer   (_____ , _____)

28 (b)   Write down the roots of $y = x^2 + 2x - 1$

[2 marks]

Answer _____

     Video Solutions

29   Wade runs a 400m race in 60 seconds.

He runs the first 300m of the race at an average speed of 7.5 m/s

Work out his average speed for the last 100m of the race.

[3 marks]

Answer _____ m/s

END OF QUESTIONS

6

Video Solutions