AQA-F | Summer '25 | 1 (NC$_2$)

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

Do not write outside the box

1 (a) Write down the next number in the sequence

1 4 7 10

+3

[1 mark]

Answer 13 ✓

1 (b) Write down the next number in the sequence

2 4 8 16

×2

[1 mark]

Answer 32 ✓

Do not write outside the box

1 (c) Write down the next number in the sequence

20 14 8 2

[1 mark]

-6

Answer -4 ✓

1 (d) Work out $3 \times (-6)$

[1 mark]

Answer -18 ✓

Turn over for the next question

4

Do not write outside the box

2 Here is a card from a game.

	13		32
8		27	
	15		36

2 (a) Write down the number **from the card** that is a multiple of 5

[1 mark]

Answer 15 ✓

2 (b) Write down the number **from the card** that is a factor of 40

[1 mark]

Answer 8 ✓

2 (c) Write down the number **from the card** that is a prime number.

[1 mark]

Answer 13 ✓

2 (d) Write down the number **from the card** that is a square number.

[1 mark]

Answer 36 ✓

Do not write outside the box

3 The pictogram shows information about the endings of street names in a town.

The key is missing.

48

Road	⊕ ⊕ ⊕
Close	⊕ ⊕
Avenue	⊕ ◢
Lane	⊕

In the town, there are 48 street names ending in **Close**.

How many street names end in **Avenue**?

[3 marks]

□ = 48 ÷ 8 = 6 ✓

5 x 6 ✓

Answer 30 ✓

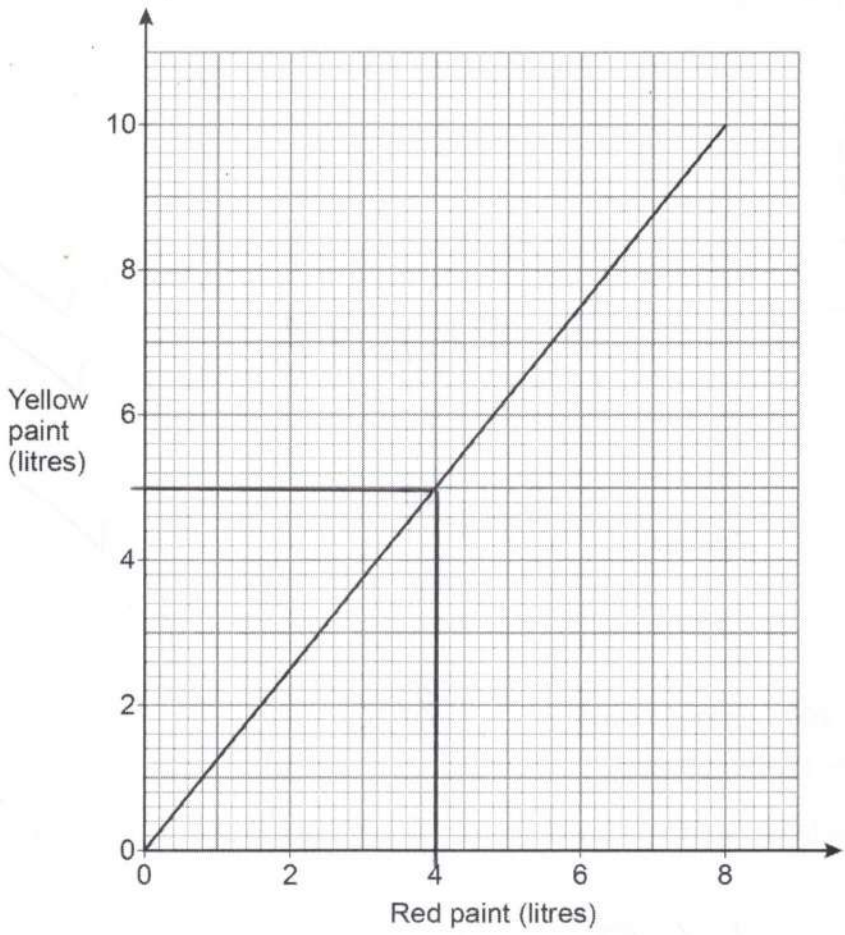
Turn over for the next question

7

Do not write outside the box

4 Ola and Pip make orange paint by mixing red paint and yellow paint.

The graph shows how much of each colour paint to use.



4 (a) Ola uses 5 litres of yellow paint.

Write down how much **red** paint Ola **uses**.

[1 mark]

Answer [3.9 → 4.1] litres ✓

4 (b) Pip uses 10 litres of yellow paint.

How much **orange** paint does Pip **make**?

[2 marks]

10 + 8 = 18 ✓

Answer [17.9 → 18.1] litres ✓

Do not write outside the box

5 A number is divided by 8

The answer is 43 remainder 5

Work out the number.

[3 marks]

43
X 28
344

344 + 5 ✓ ✓

Answer 349 ✓

6 Quin buys 200 toys for £4 each. = 800

He sells the toys for £5 each.

What is the **least** number of toys he must sell to make a profit?

[3 marks]

160
5) 800 = break even ✓✓

Answer 161 ✓

9

Do not write outside the box

7 Vinyl records cost £25 each.

Offer
Buy one and get another for half price

Arif wants to buy **two** vinyl records.
He saves £8 every Saturday.

7 (a) Assume the offer is permanent.

How many Saturdays does Arif need to save for?
You **must** show your working.

[3 marks]

25·00
+ 12·50
37·50 ✓

8, 16, 24, 32, 40 ✓

Answer 5 ✓

Do not write outside the box

7 (b) In fact, the offer is only for 1 week and there are no new offers.

What does this mean about the number of Saturdays he needs to save for?

Tick **one** box.

[1 mark]

- ☐ It is less than the answer to part (a)
- ☐ It is the same as the answer to part (a)
- ☑ It is greater than the answer to part (a)
- ☐ It is not possible to tell

£50

£56 = 7 days 5

8 Here is a list of ingredients for lentil soup.

Lentil soup for 4 people	
Lentils	170 g
Water	600 ml
Onion	50 g

x2.5 ✓

How many grams of lentils are needed to make this soup for 10 people?

[3 marks]

170
+ 170
285
425

✓ ✓

Answer 425 g ✓

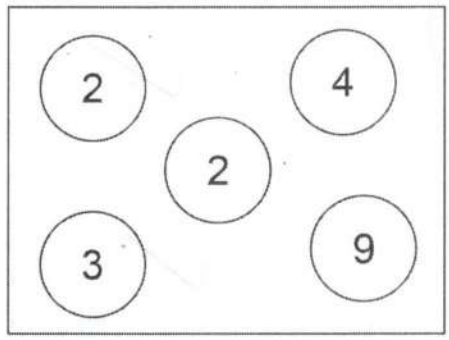
7

Turn over ▶

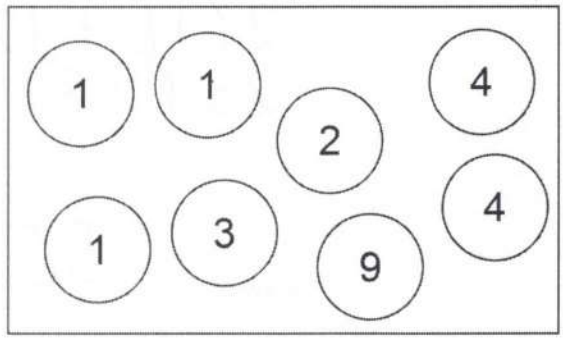
Do not write outside the box

9 Numbered discs are in two boxes.

Box A



Box B



9 (a) Work out the ratio

total value of the numbers in **Box A** : total value of the numbers in **Box B**

Give your answer in its simplest form.

[3 marks]

20 : 25 ✓✓

Answer 4 : 5 ✓ or 0.8 : 1 or 1 : 1.25

9 (b) One disc is picked at random from **Box A**.

Write down the probability that the number on the disc is greater than 6

[1 mark]

Answer $\frac{1}{5}$

Do not write outside the box

10 Work out the value of $2(a^2 + 3a)$ when $a = 4$

[3 marks]

$2(4^2 + 3 \times 4)$ ✓

$2(16 + 12)$ ✓

$2 \times (28)$

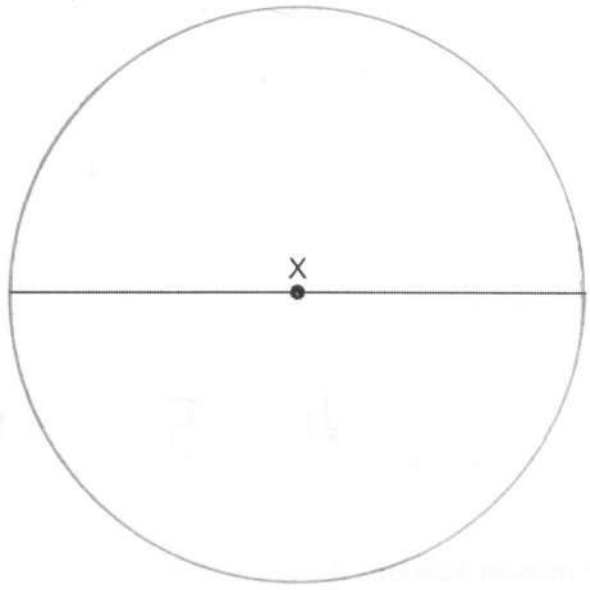
Answer 56 ✓

11 In this question use a pair of compasses.

The line shown is the **diameter** of a circle, centre X.

Draw the circle.

[1 mark]



✓

Turn over for the next question

8

Do not write outside the box

12 (a) One day,

- a company runs 240 trains
- $\frac{1}{8}$ of these trains are late.

The company is charged £350 for each late train.

How much is the company charged that day?

[3 marks]

240 ÷ 8 = 30 ✓

350
× 3
1050 ✓

(×10)

Answer £ 10 500 ✓

12 (b) Hot drinks are sold at a station in the ratio

tea : coffee : hot chocolate = 3 : 5 : 2

2600 hot drinks are sold.

How many coffees are sold?

[3 marks]

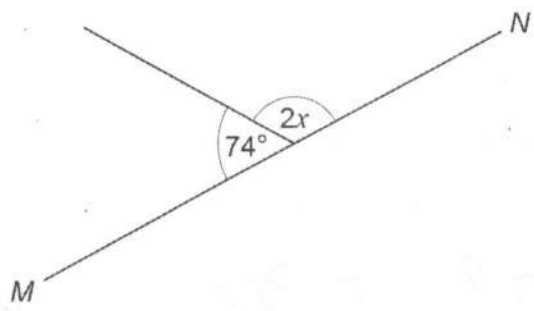
$\frac{5}{10} = \frac{1}{2}$ ✓

2600 ÷ 2 ✓

Answer 1300 ✓

Do not write outside the box

13 *MN* is a straight line.



Not drawn accurately

Work out the value of x.

[3 marks]

$2x + 74 = 180$ ✓

$2x = 106$ ✓

Answer 53 ✓ °

Turn over for the next question

9

Do not write outside the box

14 (a) By rounding each number to 1 significant figure, estimate the value of

$$1.98 \times 3.82 + 6.75^2$$

You **must** show your working.

[3 marks]

$2 \times 4 + 7^2$ ✓✓

$8 + 49$

Answer 57 ✓

14 (b) Is your answer to part (a) an overestimate or an underestimate?

Tick **one** box.

Overestimate ☑ Underestimate ☐

Give a reason for your answer.

[1 mark]

all numbers were rounded up ✓

Do not write outside the box

15 (a) A sphere has diameter 20 cm

Show that the radius of the sphere is 10 cm

$20 \div 2 = 10$ (or $20 \div 10 = 2$) ✓

[1 mark]

15 (b) The volume of a sphere is $\frac{4}{3}\pi r^3$ where r is the radius.

Work out the volume of a sphere with **diameter** 20 cm $r = 10$

Give your answer in terms of π

[2 marks]

$V = \frac{4}{3} \times \pi \times 10^3$ ✓

Answer $\frac{4000}{3}\pi$ ✓ cm^3

Turn over for the next question

7

Do not write outside the box

16 (a)

$$d = \frac{800}{w}$$

- d represents the number of days to complete a job.
- w represents the number of workers needed.

Assume the job needs completing in 20 days.

How many workers are needed?

[3 marks]

$20 = \frac{800}{w}$ ✓ $w = \frac{800}{20}$ ✓

Answer 40 ✓

16 (b) In fact, the job needs completing in **fewer** than 20 days.

What does this mean about the number of workers that are needed?

Tick **one** box.

[1 mark]

- ☐ It is less than the answer to part (a)
- ☐ It is the same as the answer to part (a)
- ☑ It is greater than the answer to part (a)

Do not write outside the box

17 A chord is drawn on a circle.

Which statement is correct?

Tick **one** box.

[1 mark]

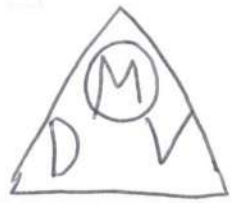


- ☐ The chord must be longer than the radius.
- ☐ The chord must be equal in length to the radius.
- ☐ The chord must be shorter than the radius.
- ☑ The chord could be longer than, equal in length to or shorter than the radius.

18 A metal solid has volume 11 cm^3

The density of the metal is 8.5 g/cm^3

Work out the mass of the solid.



[2 marks]

$M = 8.5 \times 11$ ✓

Answer 93.5 ✓ g

7

Do not write outside the box

19 The table shows information about the marks of students in a test.

	Mean mark	Range of marks
School A	61	14
School B	56	21

Tick **one** box for each statement.

[3 marks]

	True	May be true	Not true
On average, School A had higher marks	✓		
There are more students in School B		✓	
School B had a greater spread of marks	✓		

Do not write outside the box

20 (a) Work out $0.6 \div 100$

Give your answer in standard form.

[2 marks]

0.006 ✓etc

Answer 6×10^{-3} ✓

20 (b) Work out $40 \times 30 \times 10^5$

Give your answer in standard form.

[2 marks]

$4 \times 10 \times 3 \times 10 \times 10^5$

12×10^7 ✓

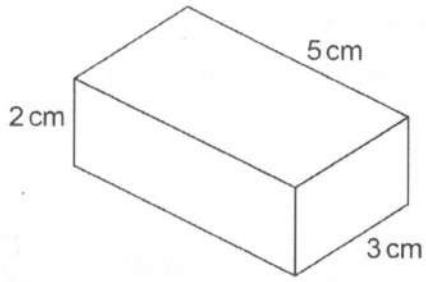
Answer 1.2×10^8 ✓

Turn over for the next question

7

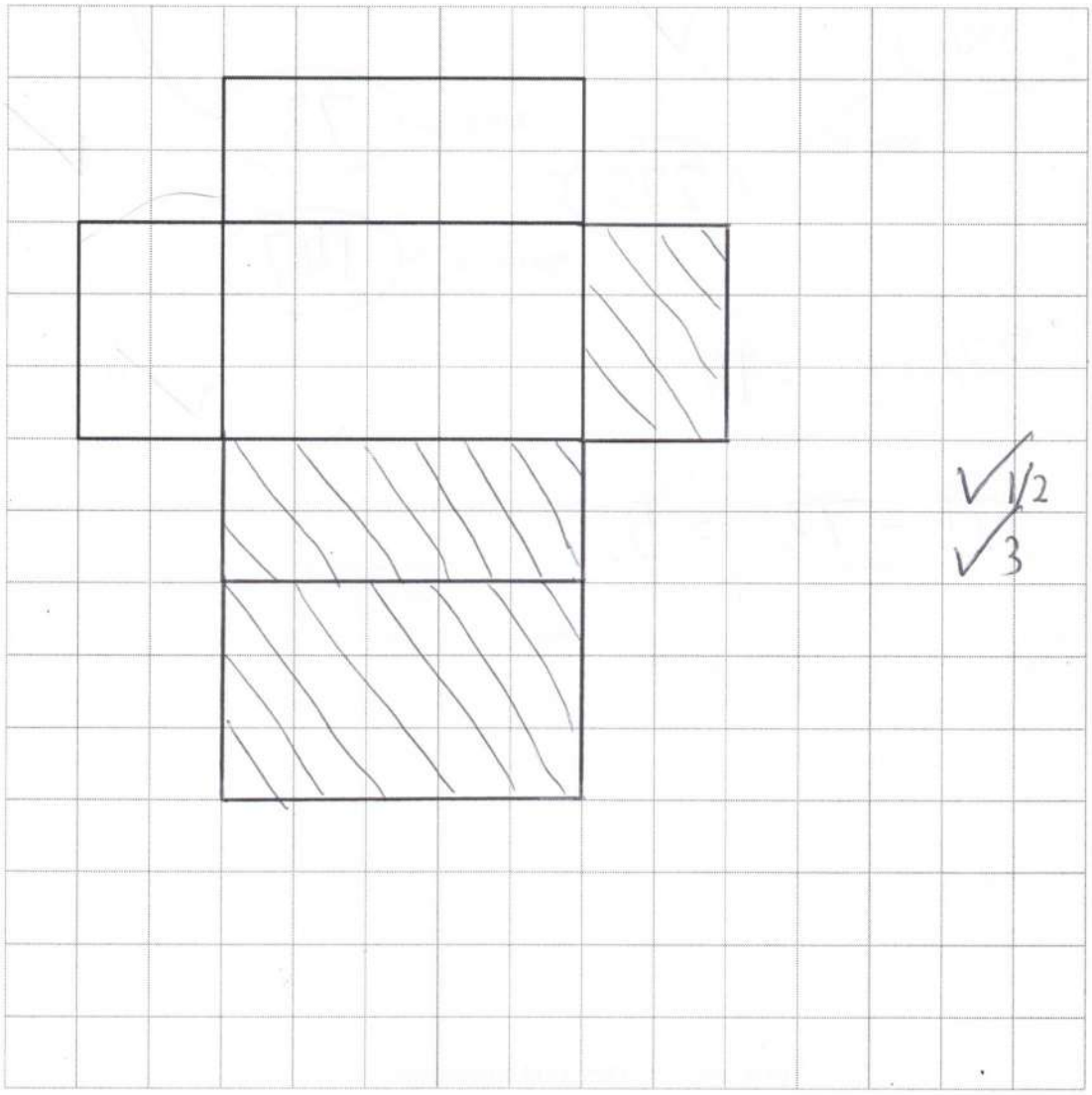
Do not write outside the box

21 Here is a cuboid.



Complete the drawing of the net on the centimetre grid.

[2 marks]



✓1/2
✓3

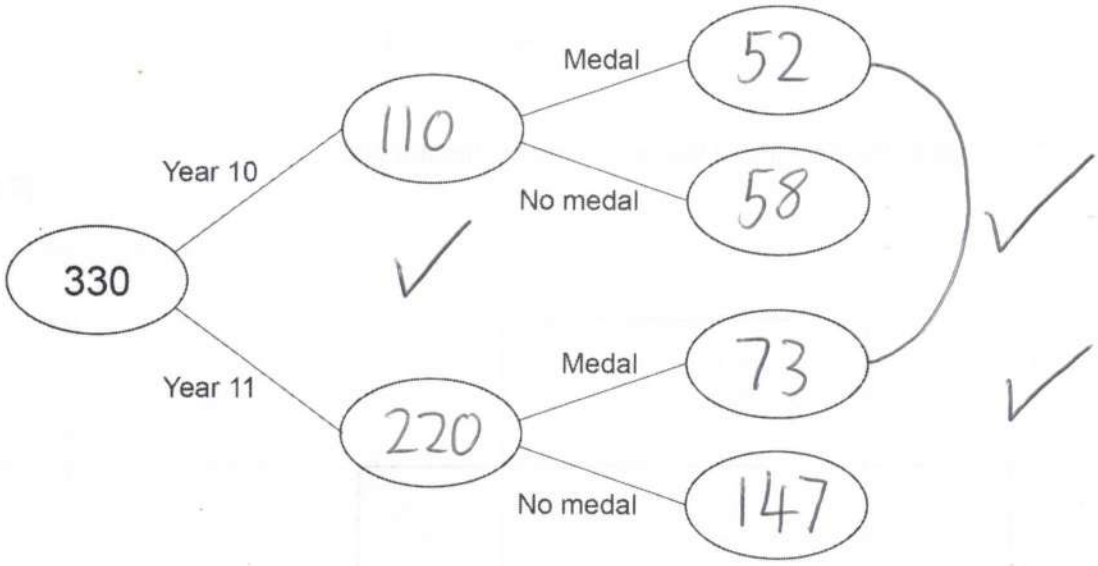
Do not write outside the box

22 330 students from Year 10 and Year 11 take part in a competition.

- number of students in Year 10 : number of students in Year 11 = 1 : 2
- 125 students win a medal.
- 73 of the students who win a medal are in Year 11

Complete the frequency tree.

[4 marks]



330 ÷ 3 = 110

125 − 73 = 52

Turn over for the next question

6

Do not write outside the box

23 Work out $\frac{4}{15} + \frac{1}{5} \div \frac{1}{2}$

Give your answer as a fraction.

[3 marks]

$\frac{4}{15} + \frac{1}{5} \times \frac{2}{1}$ ✓

$\frac{4}{15} + \frac{2}{5}$

$\frac{4}{15} + \frac{6}{15}$ ✓

Answer $\frac{10}{15}$ or $\frac{2}{3}$ ✓

24 $y = \frac{1}{x}$

Which of these values of x gives the **greatest** value of y ?

Circle your answer.

[1 mark]

$\frac{9}{20}$ $\quad$ $\frac{2}{5}$ $\quad$ -80 $\quad$ 95 ✓

$\frac{20}{9} = 2\frac{2}{9}$ $\quad$ $\frac{5}{2} = 2\frac{1}{2}$

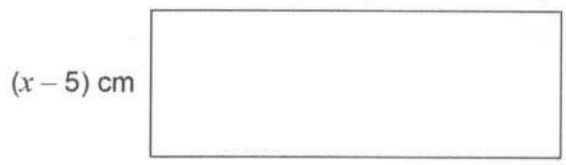
Do not write outside the box

25 Circle the value of $\sin 90°$

[1 mark]

0 $\quad \frac{1}{2} \quad \frac{\sqrt{3}}{2} \quad$ 1 ✓

26



Not drawn accurately

The area of the rectangle is $120\,cm^2$

Work out the value of x.

[4 marks]

$(x-5)(x+2) = 120$

$x^2 - 3x - 10 = 120$ ✓

$x^2 - 3x - 130 = 0$ ✓

$(x-13)(x+10) = 0$

$x = 13 \quad x = -10$ ✓

$x =$ 13 ✓

END OF QUESTIONS

9