Numbers operations and integers – 2021/20 GCSE Mathematics Higher

1. Nov/2021/Paper_J560/04/No.1

Calculate.

(a) $(6^2+5)^3$

(a) ..... **[1]**

(b) $\sqrt{\dfrac{8.4^2-1.9^2}{2.5+5.7}}$

Write your answer correct to **3** significant figures.

(b) ..... **[3]**

2. Nov/2021/Paper_J560/04/No.5

(a) Fountain A squirts water every 24 minutes.
Fountain B squirts water every 42 minutes.
They squirt water together at 15:19.

Find the next time they squirt water together.

(a) ..... **[4]**

(b) A school sends 60 students from Year 8 and 105 students from Year 9 to a museum.

The school divides these students into groups using the following rules.

- The groups must all be the same size.
- All students in any group must be from the same year.
- There should be as few groups as possible.

Find the size of each group and the total number of groups.

Size of each group = ...

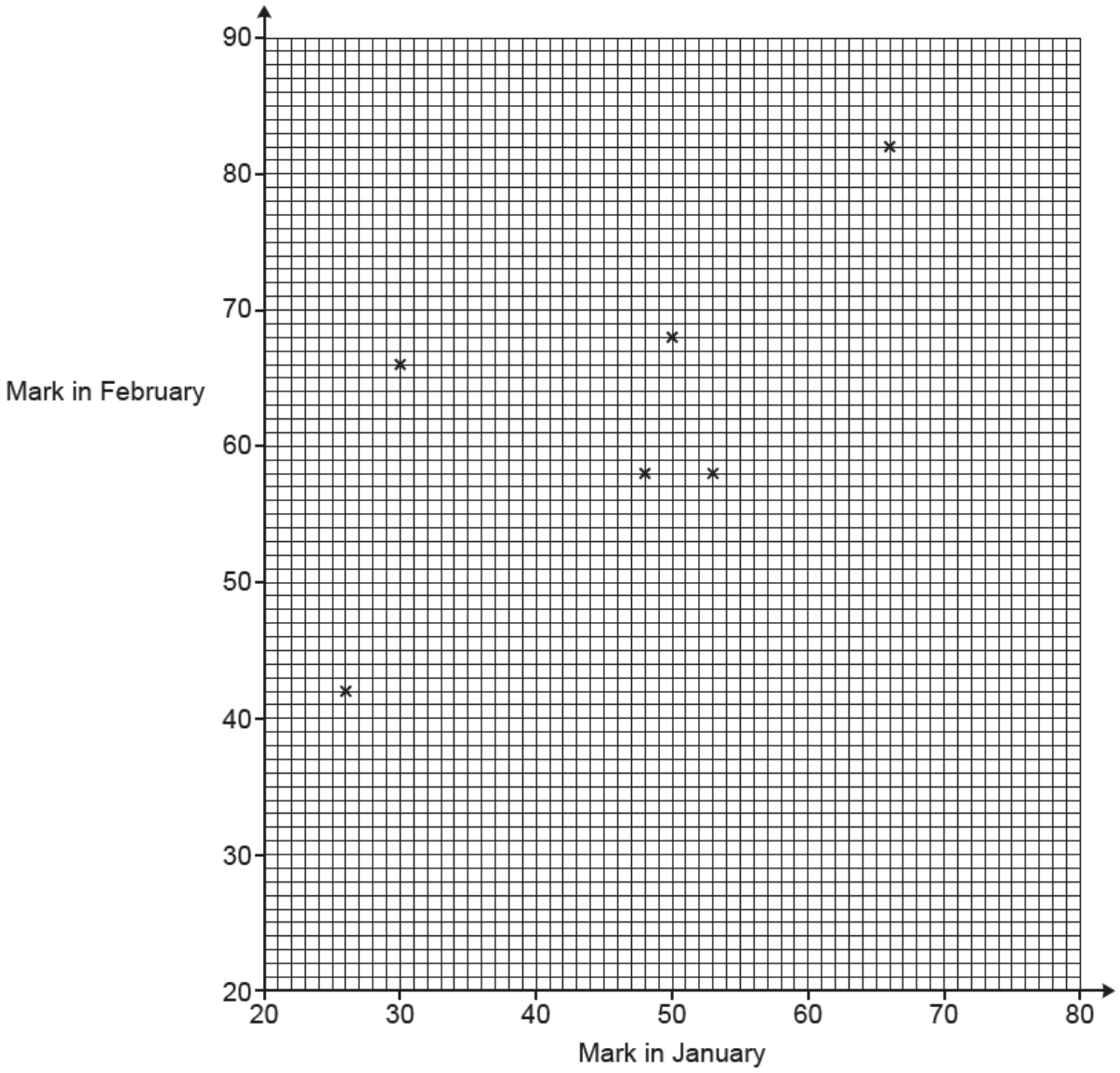
Total number of groups = ... **[4]**

3. Nov/2021/Paper_J560/05/No.4

The table shows the marks obtained by 10 students in spelling tests in January and February.

Mark in January	26	53	50	48	30	66	70	44	37	38
Mark in February	42	58	68	58	66	82	86	60	48	50

The marks for the first six students are plotted on the scatter diagram.



(a) Plot the marks for the remaining four students. **[2]**

(b) Describe the type of correlation shown in the completed scatter diagram.

..... **[1]**

(c) **(i)** On the scatter diagram, **circle** the student that made the greatest improvement in their marks from January to February. **[1]**

(ii) Work out the percentage change in this student's marks from January to February.

(c)(ii) ..... % **[3]**

(d) Another student, Kai, scored 79 marks in the test in January but was absent for the test in February.

Kai says

I could use a line of best fit on the scatter diagram to estimate the marks I may have achieved in the test in February.

Is Kai's method reliable?
Give a reason for your answer.

.....

..... **[1]**

4. Nov/2020/Paper_J560/05/No.1

Write 75 as a product of its prime factors.

..... **[2]**

5. Nov/2020/Paper_J560/05/No.6

A clock chimes every 20 minutes.
A light flashes every 8 minutes.
The clock chimes and the light flashes together at 08:00.

How many times between 08:01 and 12:30 will the clock chime and the light flash together?
Show your working.

..... **[5]**