# Cycle 1 mock exam preparation: aiming for a grade 6 (higher)

## W/C Monday 29 September

**Revision timetable:**

| | Monday 29 September | Tuesday 30 September | Wesdnesday 1 October | Thursday 2 October | Friday 3 October | Saturday 4 October | Sunday 5 October |
|---|---|---|---|---|---|---|---|
| **Securing a grade 5, aiming for a grade 6: higher** | • Mean, median, mode and range | • Frequency tables | • Scatter graphs | • Cumulative frequency | • Fraction arithmetic | • Fractions of amounts | • Fractions – worded problems |

## Notes

- 20 marks = 20 minutes (time yourself!)
- Show all of your working out
- Use the link to CorbettMaths to look at videos to support

**Mode** – the number that appears the most

**Median** – the number in the middle (when the numbers are in order)

**Mean** – the average of all the numbers (add together and divide by how many numbers there are)

**Range** – the biggest subtract the smallest

1. Here are seven cards. Each card has a number on it.

| 12 | 5 | 10 | 18 | 12 | 11 | 9 |
|---|---|---|---|---|---|---|

a) Work out the range of the numbers on the cards

(1 mark)

b) Work out the median of the numbers on the cards

(2 marks)

c) Work out the mean of the numbers on the cards

(2 marks)

2. Reece has seven number cards, each with a positive number on it.
Shown below are the numbers on five of the cards.

| 8 | 11 | 5 | 14 | 10 | | |
|---|---|---|---|---|---|---|

The range of the numbers is 16
The mode is 8

Work out the two missing numbers.

(2 marks)

3. Shown below are five cards which are arranged in order from smallest to largest

| 5 | | | | |
|---|---|---|---|---|

The range of the cards is 4.
The median of the cards is 8.
The mean of the cards is 7.

Work out the 4 missing numbers.

(3 marks)

4. Hugo has five cards.
Shown below are the numbers on three of the cards.

| 12 | 25 | 17 | | |
|---|---|---|---|---|

The mean of the five numbers on the cards is 16
The mode of the five numbers on the cards is 12

Work out the median of the five numbers on the cards.

(3 marks)

5. Walter has 5 baskets of apples.

There are 9 apples in each of three of the baskets.
There are 24 apples in each of the other two baskets.

Work out the mean number of apples per basket.

(3 marks)

1. The table shows the ages of the players in an under-21 rugby squad.

| Age | Frequency |
|---|---|
| 18 | 5 |
| 19 | 5 |
| 20 | 9 |
| 21 | 4 |

a) Find the range from the table

(1 mark)

b) Find the mode

(1 mark)

c) Find the mean

(2 marks)

2. The table gives information about the number of pets owned by each of 30 students in a class.

| Number of pets | Frequency |
|---|---|
| 0 | 11 |
| 1 | 12 |
| 2 | 6 |
| 3 | 1 |

a) Find the median

(2 marks)

b) Find the range from the table

(1 mark)

c) Find the mode

(1 mark)

d) Find the mean

(2 marks)

3. The table shows the number of sweets in 20 bags.

| Number of sweets | Frequency |
|---|---|
| 23 | 1 |
| 24 | 4 |
| 25 | 9 |
| 26 | 3 |
| 27 | 3 |

Calculate the mean.

(3 marks)

4. Thirty students were asked how many cats they owned. The results are shown in the table.

| Number of cats | Number of children |
|---|---|
| 0 | 6 |
| 1 | 13 |
| 2 | 7 |
| 3 | 3 |
| 4 | 1 |

Calculate the mean number of cats owned per child.

(3 marks)

## Scatter Graphs

- You MUST draw a line of best fit!

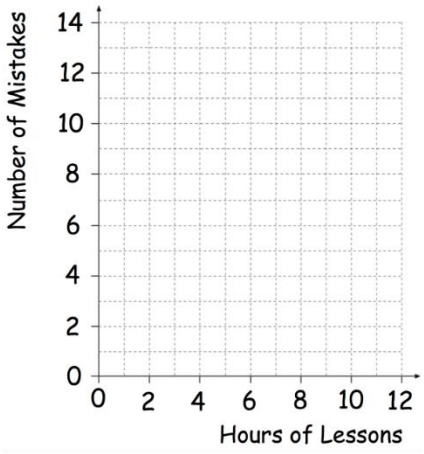
1. Eight students sat a music test.

The table shows information about how many hours of lessons they had and the number of mistakes made in the test.

| Hours of lessons | 8 | 2 | 5 | 3 | 10 | 7 | 11 | 6 |
|---|---|---|---|---|---|---|---|---|
| Number of mistakes | 8 | 12 | 7 | 9 | 2 | 6 | 1 | 5 |

(a) Show this information on the scatter graph below.

**(2)**




A student is awarded a prize is they make less than 3 mistakes.

(b) How many students are awarded a prize?

.....

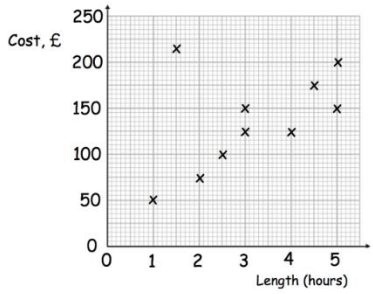
**(1)**

(c) Complete the sentence below.

Generally the more hours of lessons, the ..... mistakes are made.

**(1)**

2. Mr Hamill is a plumber.
The scatter graph shows the cost and length of his last 10 jobs.




Circle the outlier.

**(1)**

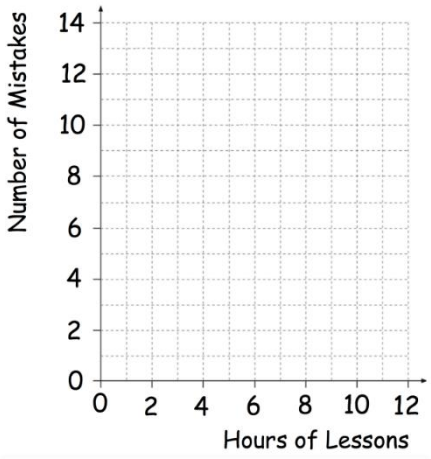
3. Eight students sat a music test.

The table shows information about how many hours of lessons they had and the number of mistakes made in the test.

| Hours of lessons | 8 | 2 | 5 | 3 | 10 | 7 | 11 | 6 |
|---|---|---|---|---|---|---|---|---|
| Number of mistakes | 8 | 12 | 7 | 9 | 2 | 6 | 1 | 5 |

(a) Show this information on the scatter graph below.

**(2)**




A student is awarded a prize is they make less than 3 mistakes.

(b) How many students are awarded a prize?

.....

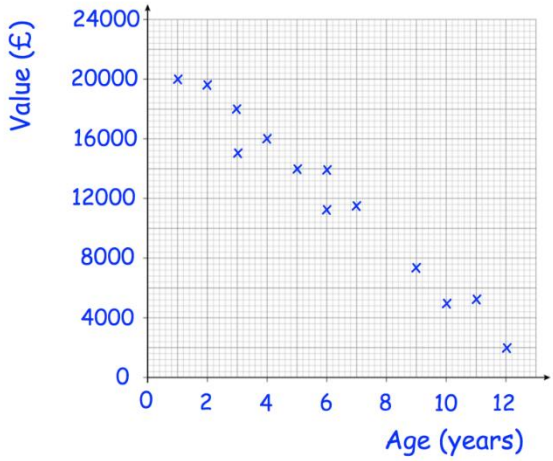
**(1)**

(c) Complete the sentence below.

Generally the more hours of lessons, the ..... mistakes are made.

**(1)**

4. The scatter graph shows the age and value of some cars.




Using the scatter graph, find an estimate for the value of an 8 year old car.

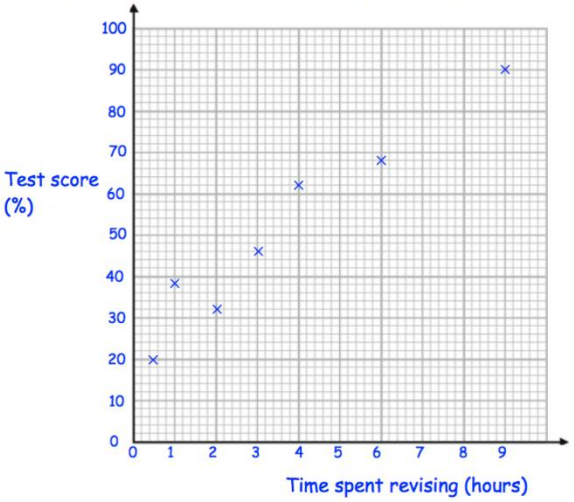
£.....

**(2)**

**5.** The table shows the time spent revising and the test scores of ten students.

| Time spent revising (hours) | 9 | 0.5 | 1 | 4 | 6 | 2 | 3 | 7 | 5 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| Test result (%) | 90 | 20 | 38 | 62 | 68 | 32 | 46 | 70 | 60 | 86 |

The first seven points have been plotted on this scatter diagram.




(a) Complete the scatter diagram.

**(1)**

(b) Describe the relationship shown in the scatter diagram.

.....

.....

**(1)**

(c) Draw a line of best fit on your scatter diagram.

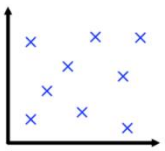
**(1)**

(d) Another student has spent 4.5 hours revising.
Use your line of best fit to estimate their test result.

.....%

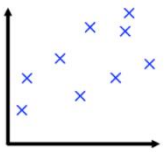
**(1)**

**6.** Match each scatter graph to the best description of the type and strength of correlation.



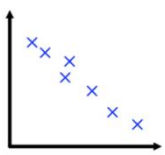
Strong positive correlation

Weak positive correlation



No correlation

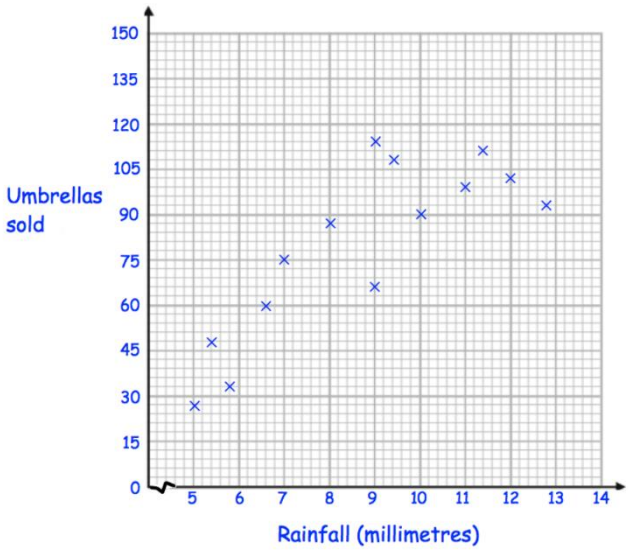
Weak negative correlation



Strong negative correlation

**7.** A shop sells umbrellas.

The scatter graph shows information about the number of umbrellas sold each week and the rainfall that week, in millimetres.




(a) Describe the relationship between the rainfall and umbrellas sold.

.....

.....

**(1)**

(b) What is the most number of umbrellas sold in one week?

.....

**(1)**

(c) What is the greatest amount of rainfall in one week?

.....

**(1)**

(d) In how many weeks did the shop sell over 105 umbrellas?

.....

**(1)**

In another week, there was 6mm of rain.

(e) Estimate the number of umbrellas sold.

.....

**(2)**

(f) Explain why it may **not** be appropriate to use your line of best fit to estimate the number of umbrellas sold in a week with 25mm of rainfall.

.....

.....

**(1)**

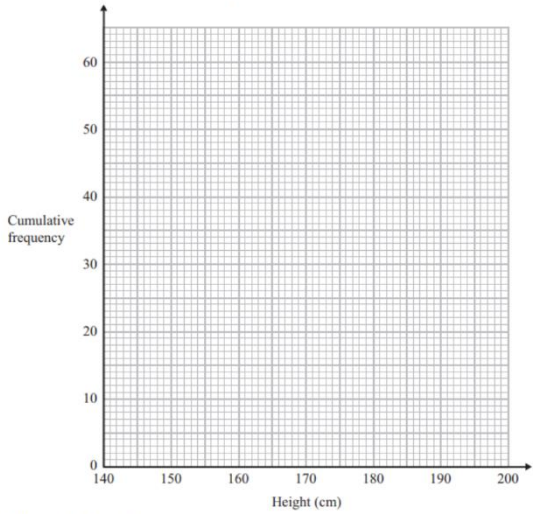
DIXONS ACADEMIES TRUST

# Thursday 2 October

**1.** The cumulative frequency table shows the height, in cm, of some tomato plants.

| Height | Cumulative Frequency |
|---|---|
| $140 < h \leqslant 150$ | 7 |
| $140 < h \leqslant 160$ | 17 |
| $140 < h \leqslant 170$ | 32 |
| $140 < h \leqslant 180$ | 51 |
| $140 < h \leqslant 190$ | 57 |
| $140 < h \leqslant 200$ | 60 |

(a) On the grid, plot a cumulative frequency graph for this information.

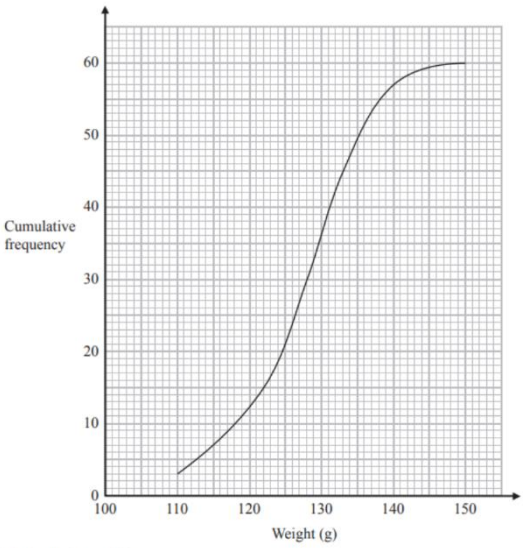



(2)

(b) Find the median height.

.....cm
(1)

**2.** The cumulative frequency graph gives some information about the weights of some objects.




(a) Find the median weight.

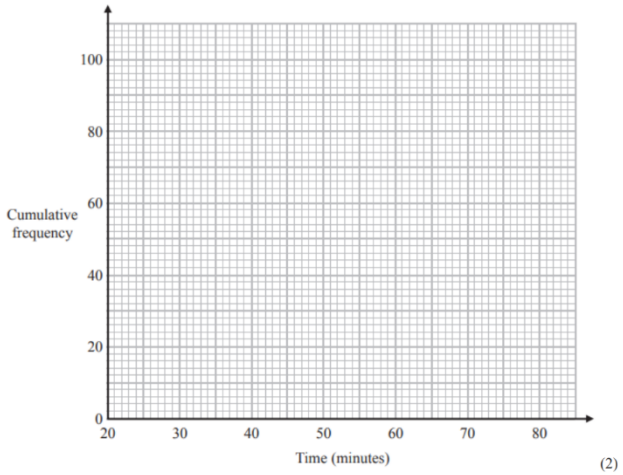
.....g

(b) Find the inter quartile range.
(1)

**3.** The frequency table shows the time taken for 100 people to travel to an event.

| Time (minutes) | Frequency |
|---|---|
| $20 < t \leqslant 30$ | 9 |
| $30 < t \leqslant 40$ | 16 |
| $40 < t \leqslant 50$ | 20 |
| $50 < t \leqslant 60$ | 29 |
| $60 < t \leqslant 70$ | 15 |
| $70 < t \leqslant 80$ | 11 |

(a) On the grid, plot a cumulative frequency graph for this information.

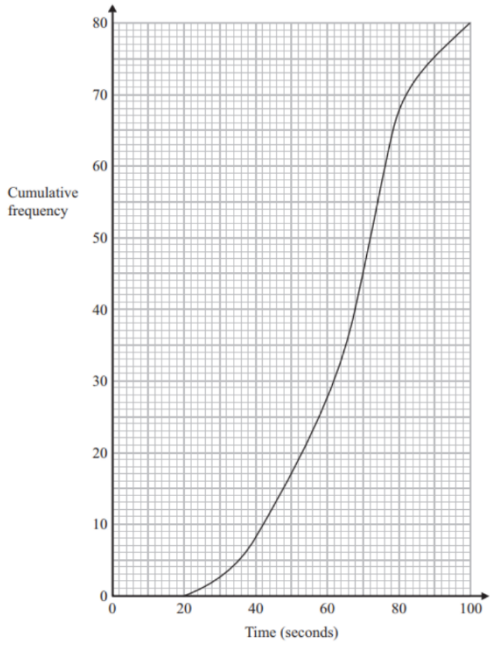



(2)

(b) Find an estimate for the median time taken.

.....minutes
(1)

**4.** The cumulative frequency graph gives some information the times it took people to complete a challenge.




(a) Find the median time.

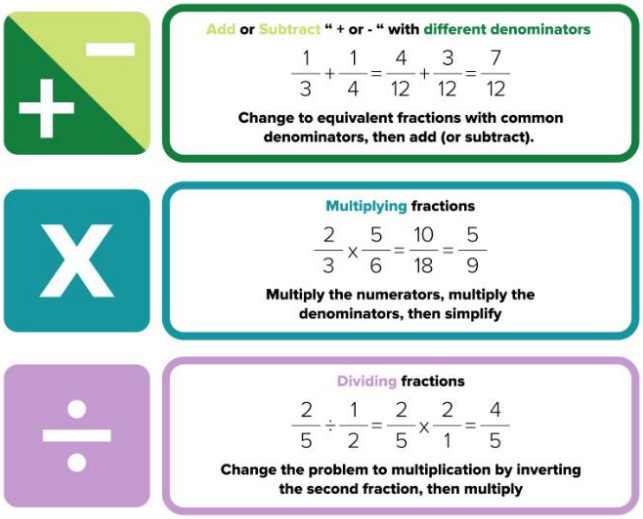
.....seconds
(1)

(b) Find the number of people who took longer then 80 seconds to complete the challenge.

.....
(1)

DIXONS ACADEMIES TRUST

## Friday 3 October




1. Work out $\frac{4}{9}+\frac{3}{5}$

(2 marks)

2. (a) Work out $\frac{2}{3}-\frac{1}{4}$

(2 marks)

(b) Work out $\frac{3}{4}\times\frac{4}{9}$

Give your answer as a fraction in its simplest form.

(2 marks)

3. Work out $\frac{3}{5}\div\frac{3}{8}$

(2 marks)

4. Work out $1\frac{5}{6}\times\frac{2}{9}$

(2 marks)

5. Work out $1\frac{3}{5}\div\frac{3}{4}$

(2 marks)

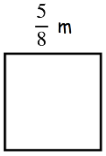
6. Work out $2\frac{1}{5}+1\frac{1}{7}$

Give your answer as a mixed number in its simplest form.

(2 marks)

7. Calculate the perimeter of a square with side length $\frac{5}{8}$ m

Give your answer as a mixed number.




(2 marks)

1. Work out $\frac{2}{5}$ of 140

(2 marks)

2. Find $\frac{2}{3}$ of 240

(2 marks)

3. Find $\frac{5}{6}$ of 72

(2 marks)

4. Work out the difference between 25 and $\frac{2}{9}$ of 81

(2 marks)

5. Work out the difference between $\frac{3}{8}$ of 32 and $\frac{2}{5}$ of 40

(2 marks)

6. There are 924 people in a theatre.

383 of the people are men.
356 of the people are women.

$\frac{2}{5}$ of the children are boys.

Work out how many girls are in the theatre.

(3 marks)

7. There are 1100 students at a school.

540 students are girls, the rest are boys.

$\frac{1}{10}$ of the girls are left handed.

$\frac{1}{8}$ of the boys are left handed.

Work out the number of left handed students in the school.

(3 marks)

8. Harry has 50 sweets.

He gives $\frac{2}{5}$ of the sweets to Sandra.

He gives $\frac{3}{10}$ of the sweets to Jamie.

Harry keeps the rest of the sweets for himself.
Work out how many sweets Harry keeps.

(4 marks)

DIXONS ACADEMIES TRUST

## Sunday 5 October

1. The normal price of a computer game is £40

   The price is reduced by $\frac{1}{5}$ in a sale.

   Work out the price of the computer game in the sale.

(2 marks)

2. The price of a new car is £18000

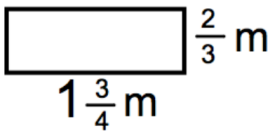
   In a sale, the price is reduced by $\frac{2}{9}$

   David buys the car in the sale.
   He pays a £2000 deposit and pays the rest over 20 monthly payments.

   Find the cost of each monthly payment.

(3 marks)

3. Jessica wants to attach ribbon around her wardrobe.




   She has 4 metres of ribbon.

   How much more does she need?
   Give your answer as a fraction.

(4 marks)

3. The normal price of a train ticket from Ashford to London is £34.20

   Ross gets $\frac{1}{3}$ off the price of his train ticket

   Work out how much Ross pays for his ticket.

(3 marks)

4. Stan has an income of £2000 a month.

   He spends $\frac{2}{5}$ of his income on rent.

   He spends $\frac{3}{20}$ of his income on bills.

   He spends $\frac{1}{10}$ of his income on food.

   Stan saves the rest of his income.

   Work out how much Stan saves each month.

(4 marks)

5. $\frac{2}{5}$ of number **n** is 18.

   Find the value of **n**.

(2 marks)

6. Ranjit is thinking of a number

   $\frac{3}{4}$ of the number is 360

   Work out $\frac{2}{5}$ of the number.

(2 marks)