Write your name here

Surname	Other names

Grade One Paper
Level 1 / Level 2 GCSE
(9–1)

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics Revision G

Answers

Grade 1 - 3

Homework
Time: 1 hour 45 minutes

Paper Reference
Grade 1-3

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your surname and first name in the correct boxes.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **You must show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**

Information

- The total mark for this paper is 106
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

Q1 Round 67.839 to the nearest ten.

70

(1)

Q2 Write 35mm in cm.

3·5 cm

(1)

Q3 Write 3.28kg in grams.

3,280 g

(1)

Q4 Write 87.3 in standard form.

$8{\cdot}73 \times 10^{1}$

(1)

Q5 Write 0.07 as a fraction.

$\frac{7}{100}$

(1)

Q6 Change 8% to decimals.

0·08

(1)

Q7 Put the following numbers in order.

$\frac{1}{2}$ 0.48 78% $\frac{3}{4}$ 0.6

0·5 0·78 0·75

0·48, $\frac{1}{2}$, 0·6 $\frac{3}{4}$, 0·78

(2)

Q8 Write $\frac{3}{5}$ as a decimal.

0.6

(1)

Q9 Round 81.267 to the nearest tenth.

81.3

(1)

Q10 Write 82mm in metres.

0.082 m

(1)

Q11 Write 75213g in kg.

75.213 kg

(1)

Q12 Write 0.0342 in standard form.

3.42×10^{-2}

(1)

Q13 Write 35% as a fraction in its simplest form.

$\frac{7}{20}$

(2)

Q14 Write 7.23×10^{-2} in ordinary form.

0.0723

(1)

Q15 Bill, Steve and Jane went on holiday for six nights.

The return flight cost £380 each.

The hotel cost £75 per person per night.

They each took £750 spending money.

Car parking at the airport cost £35.99 per night.

The transfer from the airport to the hotel cost £67 each way.

Find the total cost of the holiday assuming that everyone shared the same car or taxi.

Flight

$380 \times 3 = £1140$

Hotel

$6 \times 75 \times 3 = £1350$

Spend

$750 \times 3 = £2250$

Car Park

$35.99 \times 6 = £215.94$

Transfer

$67 \times 2 = £134$

Total

$1140 + 1350 + 2250 + 215.94 + 134$

$= £5089.94$

.....

(4)

Q16 One hundred and seventy Year 11 students were having a school camp.

The teachers decided to order pizza. Every person chose one pizza.

The options were Meat Feast, Hawaiian, Tandorri Chicken and Pepperoni.

17 of the 46 people who chose meat feast were girls.

Of the 39 people who chose Hawaiian, 18 of them were boys.

Twenty girls chose Tandorri Chicken and 31 of the 95 boys opted for pepperoni.

How many people chose Pepperoni altogether?

	Meat Feast	Hawaiian	Tandorri Chicken	Pepperoni	Total
Boys	29	18	~~17~~	31	95
Girls	17	21	~~20~~	17	75
Total	46	39	~~37~~	48	170

48

.....

(4)

Q17 David wanted to make summer pudding for **twenty** people. He found the following recipe.

Summer Pudding (Serves 8)
250 g Redcurrants
125 g Caster Sugar
300 g Strawberries
200 g raspberries
8 slices of white bread with the crusts removed
400g whipped cream

David checked his fridge and cupboards and could find the following produce.

500 g redcurrants	Need 625g (2)
✓ 1 kg Castor Sugar	312½g
500 g strawberries	700g
✓ 800 g raspberries	750g
17 slices of white bread	20 slices
400 g whipped cream	1000g

For each product, does David have enough and if not, how much more should he purchase?

(1) 8 : 20 → ×2½

(3) Need to purchase

625 − 500 = 125g red currants

700 − 500 = 200g strawberries

20 − 17 = 3 slices bread

1000 − 400 = 600g whipped cream

(5)

Q18 There are two lights: light A and light B.

Both lights flash.

Light A takes 15 seconds between flashes and light B takes 35 seconds between flashes.

Both lights flash simultaneously at 10:00 am.

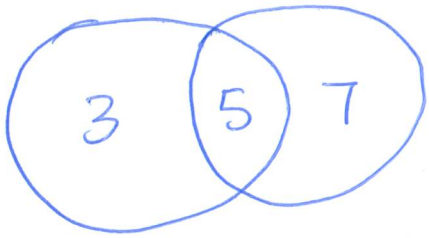
At what time do they next both flash together?

15 → 5, 3

35 → 5, 7

LCM(15, 35) = 3 × 5 × 7

= 105



105 − 60 = 45

H M S

10 : 01 : 45

(4)

Q19 Write all the prime numbers between 40 and 50.

41, 43, 47

(1)

Q20 Write 72.7cm in millimetres.

727 mm

(1)

Q21 Write 306 in standard form.

3.06×10^2

(1)

Q22 Joanne goes camping in Europe. She goes in her car.

Joanne's car does 52 miles per gallon.

There are 4.54 litres in one gallon. Petrol costs £1.48 per litre.

Joanne does 2850 miles altogether.

How much has her fuel cost her?

54.80 76

52 | 2850.000

−260↓

250

−208↓

420

−416↓

40

0↓

400

364

360

$54\frac{42}{52} = 54\frac{21}{26}$ gallons

57 × 229

2850 / 454

52 / 100

2

.....

(3)

Q23 Write 0.65 as a fraction in its simplest form.

$\frac{13}{20}$

.....

(1)

Q24 Change 37% to decimals.

0.37

.....

(1)

Q25 Put the following numbers in order.

$\frac{5}{8}$ 0.5 82% $\frac{4}{5}$ 0.7

0.625 0.82 0.8

$\frac{5}{8}$ 0.5 ~~0.625~~ 0.7 $\frac{4}{5}$ 82%

.....

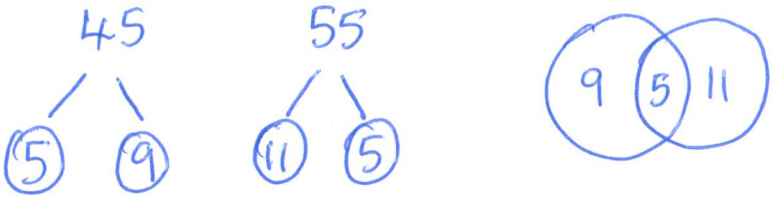
(2)

Q26 Two runners keep running round a track.

Cole takes 45 seconds. Jack takes 55 seconds.

They both start together at exactly 9:00am.

At what time do they both finish complete their current lap at the same time?



LCM = 5 x 9 x 11

= 495

495 ÷ 60 = 8 r 15

H M S

9:08:15

(3)

Q27 Round 212 to the nearest hundred.

200

(1)

Q28 Write 67mm in cm.

67 ÷ 10

6.7 cm

(1)

Q29 Write 7kg in grams.

7 x 1000

7000 g

(1)

Q30 In a library, there are non-fiction, fiction and reference books.

The librarian is interested in finding out the gender of people who use each type of book.

Over the course of a week, there are 825 recorded visits to the library altogether.

Two more males than females used the Reference section which had a total of 126 borrowers.

119 men borrowed fiction books over the course of the week.

300 of the 513 females that used the library were searching for fiction books.

How many men borrowed non-fiction titles?

	Fiction	Nonfiction	Reference	Total
Male	119	129	64	312
Female	300		62	513
Total	419		126	825

825 − 513 = 312

119 + 64 = 183

2 10, 312 − 183 = 129

129 men

(4)

Q31 Billy goes on holiday. He takes £800 in spending money.

When he goes on holiday, he gets an exchange rate of £1 : $1.35

a How many dollars does he get to spend?

×1·35

1 : 1·35

800 :

×1·35

800
1·35×
4000
24000
80000
1080·00

$1080

(2)

Billy spends $750.

When he returns home, the exchange rate is $1 : £0.78

b How much money, in pounds and pence, does Billy return with?

×0·78

1 : 0·78

330 : 257·4

×0·78

1080 −
750
330

330
0·78×
26 40
23 100
257·40

£257·40

(2)

Q32 Put these numbers in order of size.

0.241 2.14 1.42 1.24 0.214

0·214, 0·241, 1·24, 1·42, 2·14

(2)

Q33 Kelly, Jane and Freda go on a seven night coach trip.

The cost of the coach is £140 each.

The hotels cost £87.50 per person per night.

They each take £550 spend.

How much does the trip cost in total?

Coach

£420

140
× 3
420

Hotel

£1837.50

87.5
× 3
262.5

262.5
× 7
1837.5

Spend

£1650

550
× 3
1650

Total

£3907.50

1837.50
1650.00
420.00
3907.50

£3,907.50

(4)

Q34 In a language school, students in years 9, 10 and 11 have the choice of French, German, Italian or Spanish.

368 students attend the school, of which 126 are in Year 10.

41 of the 101 students that study Spanish are in Year 11.

Fifteen students in Year 9 and 19 students in Year 10 study German.

French is the most popular language in Year 9 with 62 of the 120 Year 9 students studying it.

23 Year 10 students and 19 Year 9 students study Italian.

In total, 57 students study German and 58 students study Italian.

How many Year 11 students are there studying German?

	French	German	Italian	Spanish	Total
y 9	62	15	19		120
y 10		19	23		126
y 11		23		41	
Total		57	58	101	368

$57 - (15 + 19) = 57 - 34 = 23$

23

(5)

Q35 Look at the following column vectors.

$$\boldsymbol{a} = \begin{pmatrix} 3 \\ 4 \end{pmatrix} \qquad \boldsymbol{b} = \begin{pmatrix} -3 \\ 9 \end{pmatrix} \qquad \boldsymbol{c} = \begin{pmatrix} -2 \\ -5 \end{pmatrix}$$

a Calculate $3\mathbf{a} + 4\mathbf{c}$

$3\begin{pmatrix} 3 \\ 4 \end{pmatrix} + 4\begin{pmatrix} -2 \\ -5 \end{pmatrix} = \begin{pmatrix} 9 \\ 12 \end{pmatrix} + \begin{pmatrix} -8 \\ -20 \end{pmatrix} = \begin{pmatrix} 1 \\ -8 \end{pmatrix}$

$-(-15) = +15$

$\begin{pmatrix} 1 \\ -8 \end{pmatrix}$

(2)

b Calculate $7\boldsymbol{a} - 5\boldsymbol{b} + \boldsymbol{c}$

$7\begin{pmatrix} 3 \\ 4 \end{pmatrix} - 5\begin{pmatrix} -3 \\ 9 \end{pmatrix} + \begin{pmatrix} -2 \\ -5 \end{pmatrix} = \begin{pmatrix} 21 \\ 28 \end{pmatrix} - \begin{pmatrix} -15 \\ 45 \end{pmatrix} + \begin{pmatrix} -2 \\ -5 \end{pmatrix}$

$= \begin{pmatrix} 34 \\ -22 \end{pmatrix}$

$\begin{pmatrix} 34 \\ -22 \end{pmatrix}$

(2)

Another column vector, $\boldsymbol{d} = \begin{pmatrix} 6 \\ k \end{pmatrix}$.

c Find the value of k if

$$3\boldsymbol{a} - 2\boldsymbol{d} = \begin{pmatrix} -3 \\ 2 \end{pmatrix}$$

$3\begin{pmatrix} 3 \\ 4 \end{pmatrix} - 2\begin{pmatrix} 6 \\ k \end{pmatrix} = \begin{pmatrix} -3 \\ 2 \end{pmatrix}$

$\begin{pmatrix} 9 \\ 12 \end{pmatrix} - \begin{pmatrix} 12 \\ 2k \end{pmatrix} = \begin{pmatrix} -3 \\ 2 \end{pmatrix}$

$+2k(12 - 2k = 2)+2k$

$-2(12 = 2 + 2k)-2$

$\div 2(10 = 2k)\div 2$

$5 = k$

$k = 5$

(3)

Q36 Expand $4(3x + 2)$

	$3x$	$+2$
4	$12x$	$+8$

$12x + 8$

(2)

Q37 Expand $5(6x - 3)$

	$6x$	-3
5	$30x$	-15

$30x - 15$

(2)

Q38 Expand $(3x + 7)(3x + 2)$

	$3x$	$+2$
$3x$	$9x^2$	$+6x$
$+7$	$+21x$	$+14$

$9x^2 + 27x + 14$

(2)

Q39 Expand $(2x + 5)^2$

	$2x$	$+5$
$2x$	$4x^2$	$+10x$
$+5$	$+10x$	$+25$

$4x^2 + 20x + 25$

(2)

Q40 Factorise fully $(12x + 9)$

	$4x$	$+3$
3	$12x$	$+9$

$3(4x + 3)$

(2)

Q41 Factorise fully $(24x - 8)$

	$6x$	-2
4	$24x$	-8

$4(6x - 2)$

(2)

Q42 Factorise $(18x - 24)$

	$3x$	-4
6	$18x$	-24

$6(3x - 4)$

(2)

Q43 Factorise $(48x^2 + 6x)$

	$8x$	$+1$
$6x$	$48x^2$	$+6x$

$6x(8x + 1)$

(2)

Q44 Evaluate $m^2 \times m^3$

$m^{2+3} = m^5$

m^5

(1)

Q45 Evaluate 7^0

1

(1)

Q46 Evaluate $3^2 \times 2^3$

$9 \times 8 = 72$

72

(1)

Q47 Evaluate $(m^5)^3$

$m^{5\times 3} = m^{15}$

m^{15}

(1)

Q48 Evaluate $m^{-2} \times m^3$

$m^{3-2} = m^1 = m$

m

(1)

Q49 $\boldsymbol{a} = \begin{pmatrix} -3 \\ -2 \end{pmatrix}$ $\boldsymbol{b} = \begin{pmatrix} -5 \\ 4 \end{pmatrix}$

a $5\boldsymbol{a} - 3\boldsymbol{b} =$ $5\begin{pmatrix} -3 \\ -2 \end{pmatrix} - 3\begin{pmatrix} -5 \\ 4 \end{pmatrix}$

$= \begin{pmatrix} -15 \\ -10 \end{pmatrix} - \begin{pmatrix} -15 \\ 12 \end{pmatrix} = \begin{pmatrix} 0 \\ -22 \end{pmatrix}$

$\begin{pmatrix} 0 \\ -22 \end{pmatrix}$

(2)

b $7\boldsymbol{a} + 9\boldsymbol{b} =$

$7\begin{pmatrix} -3 \\ -2 \end{pmatrix} + 9\begin{pmatrix} -5 \\ 4 \end{pmatrix} = \begin{pmatrix} -21 \\ -14 \end{pmatrix} + \begin{pmatrix} -45 \\ 36 \end{pmatrix} = \begin{pmatrix} -66 \\ 22 \end{pmatrix}$

(2)

Q50 Calculate 673 × 89

Show your working out.

673
89 ×
6057
53840
59897

59897

(2)

Q51 Calculate 3249 × 2.5

Show your working out.

3249
2.5×
16245
64980
8122.5

8122.5

(2)

Q52 Calculate 67.92 × 73.4

Show your working out.

67.92
73.4×
27168
20376
475440
4985.328

4985.328

(2)