Write your name here

Surname	Other names

Pearson Edexcel
Level 1/Level 2 GCSE (9 - 1)

Centre Number | Candidate Number

Mathematics AO3

Mathematical problem solving

Bronze Test

Grades 1-3

Time: 30-45 minutes

Paper Reference
1MA1

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

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need*.
- **Calculators must not be used in questions marked with as asterisk (*).**
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out** with your **answer clearly identified** at the **end of your solution**.

Information

- This test is aimed at students targeting grades 1-3.
- This bronze test has 8 questions. The total mark for this paper is 27.
- 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.

***1.** Tanya needs to buy chocolate bars for all the children in Year 7.
Each of the 130 children get one chocolate bar.

There are 8 chocolate bars in each packet.

(a) Divide 130 by 8 to estimate how many packets of chocolate bars Tanya needs.

……..
(2)

(b) Work out the **least** number of packets of chocolate bars that Tanya needs to buy.

…….
(1)

(Total for Question 1 is 3 marks)

***2.** Paul organised an event for a charity.

Each ticket for the event cost £19.95.
Paul sold 395 tickets.

(a) Find the price of a ticket to the nearest pound.

……..
(1)

(b) Find the number of tickets Paul sold, to the nearest hundred.

……..

(c) Work out an estimate for the amount of money made from ticket sales.

……..
(1)

Paul paid costs of £6000.
He gave all money left to the charity.

(d) Use this information and your answer to part (c) to work out an estimate for the amount of money Paul gave to the charity.

£……
(1)

(e) Is your answer to part (d) an underestimate or an overestimate?
Give a reason for your answer.

……

……...……
(1)

(Total for Question 2 is 4 marks)

3. Jane made some almond biscuits which she sold at a fête.

She had: 5 kg of flour
3 kg of butter
2.5 kg of icing sugar
320 g of almonds

Here is the list of ingredients for making 24 almond biscuits.

Ingredients for 24 almond biscuits
150 g flour
100 g butter
75 g icing sugar
10 g almonds

Jane made as many almond biscuits as she could, using the ingredients she had.

(a) How many biscuits could be made with 5 kg of flour?

……

(b) How many biscuits could be made with 3 kg of butter?

……
(1)

(c) How many biscuits could be made with 2.5 kg of icing sugar?

……

(d) How many biscuits could be made with 320g of almonds?

……
(1)

(e) Taking the smallest answer from parts (a)–(d), write how many almond biscuits Jane made.

……
(1)

(Total for Question 3 is 3 marks)

4. Jan writes down

one multiple of 9
and two different factors of 40.

(a) Write down the first three multiples of 9.

……
(1)

(b) Write down the factors of 40.

……
(1)

Jan adds together her three numbers.
Her answer is greater than 20 but less than 30.

Find three numbers that Jan could have written down. Use one number from part (a) and two numbers from part (b).

……
(1)

(Total for Question 4 is 3 marks)

5. Faiza buys

one magazine costing £2.30
one paper costing 92p
two identical bars of chocolate

(a) Work out the total cost of the magazine and the paper.

…….
(1)

Faiza pays with a £5 note.
She gets 40p change.

(b) Work out the total cost of the magazine, paper and **two** bars of chocolate.

…….
(1)

(c) Work out the cost of **two** bars of chocolate.

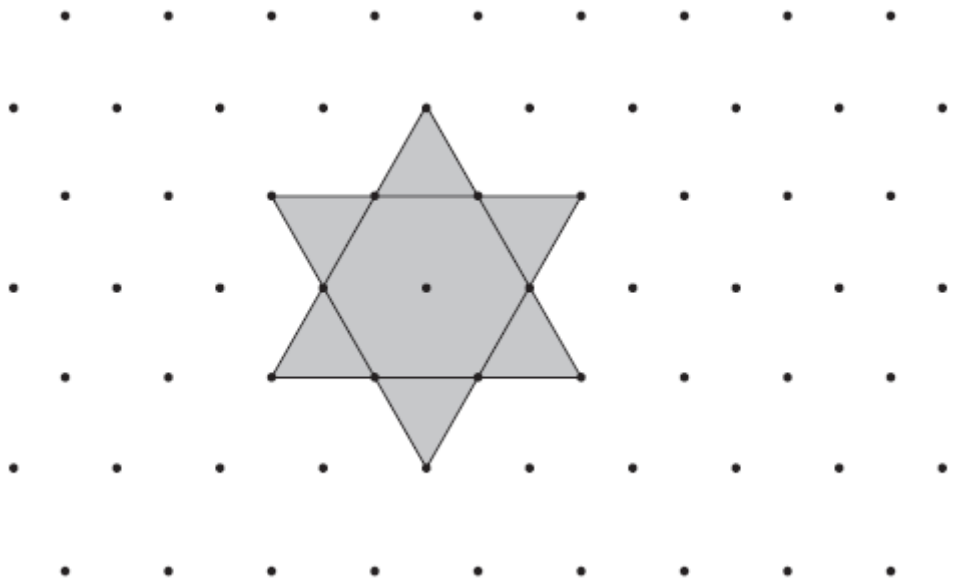
…….

(d) Work out the cost of **one** bar of chocolate.

…….
(1)

(Total for Question 5 is 3 marks)

6. Here is a star shape.



The star shape is made from a regular hexagon and six congruent equilateral triangles.

(a) Work out how many equilateral triangles will fit into the regular hexagon.

……

(b) Thus work out how many equilateral triangles there are in the star shape.

……
(1)

The area of the star shape is 96 cm^2.

(c) Work out the area of one equilateral triangle.

……

(d) Use your answer to part (a) to work out the area of the regular hexagon.

..... cm^2
(1)

(Total for Question 6 is 2 marks)

7. The total weight of 3 tins of beans and 4 jars of jam is 2080 g.
The total weight of 5 tins of beans is 2000 g.

(a) Work out the weight of 1 tin of beans.

1 tin of beans ..... g
(1)

(b) Work out the weight of 3 tins of beans.

3 tins of beans ..... g
(1)

The total weight of 3 tins of beans and 4 jars of jam is 2080 g.

(c) Work out the weight of 4 jars of jam.

4 jars of jam ..... g
(1)

(d) Work out the weight of 1 jar of jam.

1 jar of jam ..... g
(1)

(Total for Question 7 is 4 marks)

***8.** Sam buys 20 boxes of oranges.
There are 25 oranges in each box.

(a) Work out how many oranges Sam buys in total.

……

Each box of oranges costs £7

(b) Work out how much Sam pays for 20 boxes of oranges.

£……..
(1)

Sam sells $\frac{2}{5}$ of the oranges he bought.

(c) Work out how many oranges Sam sells.

……

He sells each of these oranges for 40p.

(d) Work out how much Sam receives for these oranges.

£……..
(1)

He then sells all of the remaining oranges at 3 oranges for 50p.

(e) Work out how many oranges Sam had remaining.

……

(f) Work out how much Sam received for the remaining oranges.

£……..
(1)

(g) How much did Sam receive for all the oranges he sold?

£……..

(1)

(h) Use your answers from parts (a) and (g) to work out whether Sam made a profit or loss.
You must show working to justify your answer.

……..

(1)

(Total for Question 8 is 5 marks)

TOTAL FOR PAPER IS 27 MARKS

Mathematical problem solving: Gold Test Grades 1-3			
Question	**Working**	**Answer**	**Notes**
1 (a)		17	P1 start to process information e.g. 130 ÷ 8 **or** repeated subtraction from 130 **or** repeated addition A1 16.25 **or** 16 remainder 2 **or** 128 **or** 136
(b)			C1 allow ft; interprets answer to round up to integer value
2 (a)		2000	P1 Evidence of estimate e.g. 400 or 20 used in calculation
(c)			P1 complete process to solve problem
(d)			A1
(e)		Overestimate with reason	C1 ft from (a) e.g. overestimate as two numbers rounded up
3 (a) (b)		720	P1 attempt to find the maximum biscuits for one of the ingredients e.g. 5000 ÷ 15 (= 33.3..) or 2500 ÷ 75 (= 33.3..) or 3000 ÷ 100 (= 30) or 320 ÷10 (= 32)
(c) (d)			P1 for identifying butter as the limiting factor or 30 × 24 (= 720) seen
(e)			A1

Mathematical problem solving: Gold Test Grades 1-3			
Question	**Working**	**Answer**	**Notes**
4 (a)		e.g. 1, 2, 18	P1 Starts process e.g. Lists at least 2 multiples from 9, 18, 27, 36, 45 **or** lists at least 2 factors from 1, 2, 4, 5, 8, 10, 20, 40
(b)			P1 Continues process eg. gives a set of numbers whose sum is greater than 20 but less than 30 but numbers may not all be appropriate factors/multiples
(c)			A1 Gives 3 numbers that meet all the criteria
5 (a)	(500 – 230 – 92 – 40) ÷ 2	69p	P1 for start to process e.g. 230 + 92 or 500 – 40
(b)			P1 for complete process
(c)			A1 for 69p or £0.69
6 (a-b)		48	P1 For start to process eg.96 ÷ 12 **or** 96 ÷ 2
(c-d)			A1 cao
7 (a)	2000 ÷ 5 = 400 2080 − 3 × 400 = 880	400, 220	B1 for 400 (weight of beans)
(b)	880 ÷ 4		P1 Process to find total weight of 4 jars of jam
(c)			P1 Process to find weight of 1 jar of jam
(d)			A1

Mathematical problem solving: Gold Test Grades 1-3			
Question	**Working**	**Answer**	**Notes**
8 (a-b)		loss (supported by correct figures)	P1 process to find total spent eg. 20 × 7 (= 140)
(c-d)			P1 complete process to find profit from full price oranges e.g. $\frac{2}{5}\times 25\times 20\times 40 (=8000)$
(e-f)			P1 complete process to find profit from reduced price oranges e.g. $50\times\left(\frac{3}{5}\times 25\times 20\right)\div 3$ (= 5000)
(g)			P1 complete process to find total income with consistent units
(h)			A1 loss with £10 **or** −£10 **or** £130 **and** £140