Algebra – 2022 GCSE Mathematics Foundation

1. June/2022/Paper_J560/01/No.7

(a) Simplify.

$t + 5t - 4t$

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

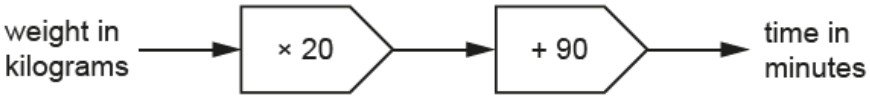
(b) Factorise.

$x^2 + 2x$

(b) ..... **[1]**

2. June/2022/Paper_J560/01/No.14

Here is a rule to work out the time, in minutes, needed to cook a turkey.



(a) Ling's turkey takes 150 minutes to cook.

Use the rule to work out the weight of Ling's turkey.

(a) ..... kg **[2]**

(b) James cooks a different turkey.
His turkey weighs 6 kg.
James wants to take his turkey out of the oven at 1:15 pm.

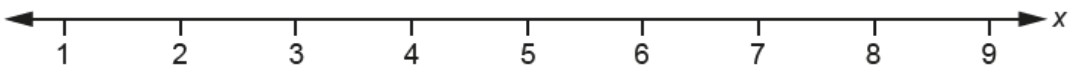
Use the rule to work out at what time James should put his turkey in the oven.
You must show your working.

(b) ..... **[5]**

3. June/2022/Paper_J560/01/No.17

Solve $2x + 5 \geqslant 11$.

Show your solution on the number line.



[4]

4. June/2022/Paper_J560/02/No.7

(a) Multiply out.

$5(x+2)$

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

(b) Rearrange this formula to make r the subject.

$p = 3r - 5$

(b) ..... **[2]**

5. June/2022/Paper_J560/02/No.21

(a)

$$(x+4)(x+3) = x^2 + 7x + 12$$

Darcy says that the statement in the box is an equation.
Ellis says that the statement in the box is an identity.
One of them is correct.

Explain which one of Darcy or Ellis is correct.

..... is correct because .....

.....

.....

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

(b) Solve by factorising.

$x^2 + 4x - 12 = 0$

(b) $x =$ ..... or $x =$ ..... **[3]**

6. June/2022/Paper_J560/03/No.3

Here are the first four dot patterns in a sequence.

Pattern 1 Pattern 2 Pattern 3 Pattern 4

(a) Draw Pattern 5 in the sequence. **[1]**

(b) Without drawing, work out how many dots are in Pattern 8 of the sequence.
Explain how you worked out your answer.

..... because .....

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

7. June/2022/Paper_J560/03/No.8

(a) Simplify.

$2 \times 3a$

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

(b) Simplify.

$$\frac{2x^5}{4x}$$

(b) ..... **[2]**

8. June/2022/Paper_J560/03/No.14

In a dance competition, four judges award marks to each dancer.
Each judge can award 1, 2, 3, 4 or 5 marks.

The four judges' median mark, m, is put into the formula

$S = 10m - 5$

to get the dancer's score, S.

(a) Sam is awarded marks of 4, 3, 1 and 4.
Work out Sam's score.

(a) ..... **[3]**

(b) Taylor gets a score of 40.
Taylor says

The judges must have awarded marks of 4, 4, 5 and 5
because the median is 4.5
and $4.5 \times 10 - 5 = 40$.

Why is Taylor not correct?
Show working to support your reason.

.....

.....

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

9. June/2022/Paper_J560/03/No.19

(a) Multiply out and simplify.

$(x-4)(x+5)$

(a) ..... **[2]**

(b) Factorise.

x^2-25

(b) ..... **[1]**

10. June/2022/Paper_J560/03/No.21

Solve the simultaneous equations.

$3x + y = 11$

$x + y = 3$

$x =$ .....

$y =$ ..... **[3]**