



SCHOLARSHIP EXAMINATION

MATHEMATICS

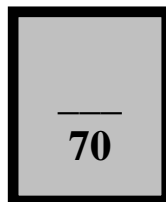
2014

Time: 1 hour

Name:

School:

Non Calculator



1. Given that $1793 \times 185 = 331\,705$

write down the value of

(a) 1.793×185

.....

(b) $331\,705 \div 1.85$

.....

(Total for Question 1 is 2 marks)

2. Mr Mason asks 240 Year 11 students what they want to do next year.

15% of the students want to go to college.

$\frac{3}{4}$ of the students want to stay at school.

The rest of the students do not know.

Work out the number of students who do not know.

.....

(Total for Question 2 is 4 marks)



3. (a) Expand $3x(2x + 5)$

.....
(2)

(b) Expand and simplify $(m + 3)(m + 10)$

.....
(2)

(Total for Question 3 is 4 marks)

4. Write 525 as a product of its prime factors.

.....
(Total for Question 4 is 2 marks)



5. Ed has 4 cards.
There is a number on each card.

12

6

15

?

The mean of the 4 numbers on Ed's cards is 10.

Work out the number on the 4th card.

.....
(Total for Question 5 is 2 marks)



6. Margaret has some goats.
The goats produce an average total of 21.7 litres of milk per day for 280 days.
Margaret sells the milk in $\frac{1}{2}$ litre bottles.

Work out an estimate for the total number of bottles that Margaret will be able to fill with the milk.

You must show clearly how you got your estimate.

.....
(Total for Question 6 is 3 marks)

7. Matt and Dan cycle around a cycle track.
Each lap Matt cycles takes him 50 seconds.
Each lap Dan cycles takes him 80 seconds.

Dan and Matt start cycling at the same time at the start line.

Work out how many laps they will each have cycled when they are next at the start line together.

Matt laps
Dan laps
(Total for Question 7 is 3 marks)



8. The diagram shows a garden in the shape of a rectangle.

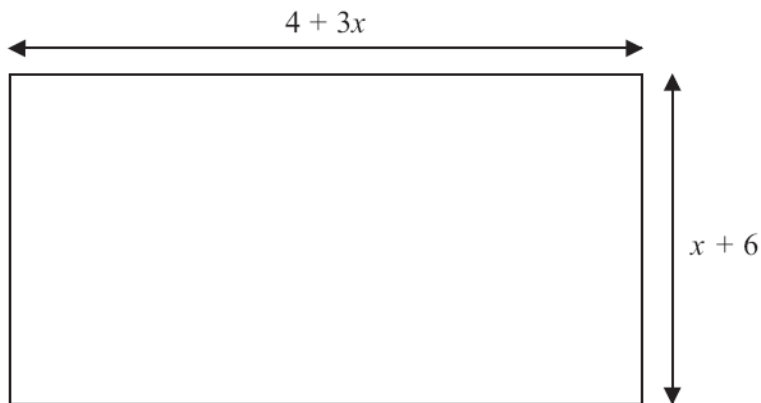


Diagram **NOT**
accurately drawn

All measurements are in metres.
The perimeter of the garden is 32 metres.

Work out the value of x .

.....
(Total for Question 8 is 4 marks)



9. (a) Work out the value of $\frac{2}{3} \times \frac{3}{4}$

Give your answer as a fraction in its simplest form.

.....
(2)

(b) Work out the value of $1\frac{2}{3} + 2\frac{3}{4}$

Give your answer as a fraction in its simplest form.

.....
(3)

(Total for Question 9 is 5 marks)

10. Solve the simultaneous equations

$$\begin{aligned}4x - 3y &= 11 \\10x + 2y &= -1\end{aligned}$$

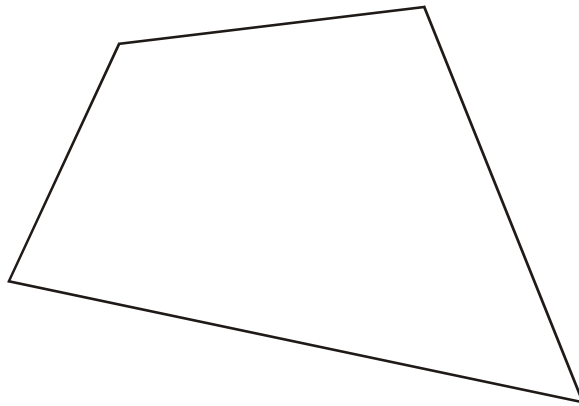
$x =$

$y =$

(Total for Question 10 is 4 marks)



11. (a)



The sum of the angles of a triangle is 180° .

Prove that the sum of the angles of any quadrilateral is 360° .

(2)

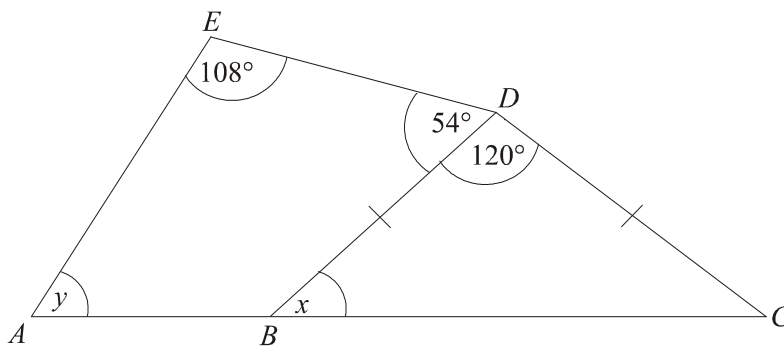


Diagram **NOT** accurately drawn

In the diagram, ABC is a straight line and $BD = CD$.

(a) Work out the size of angle x .

.....^o
(2)

(b) Work out the size of angle y .

.....^o



(2)

(Total for Question 11 is 6 marks)

12. Compasses cost c pence each.
Rulers cost r pence each.

Write down an expression for the total cost, in pence, of 6 compasses and 9 rulers.

..... pence

(2)

(Total for Question 12 is 2 marks)

13. $d = 4t - 10$

$d = 30$

- (a) Work out the value of t .

.....
(2)

$y = 4b - 3e$

$b = 2$

$e = -5$

- (b) Work out the value of y .

.....
(2)



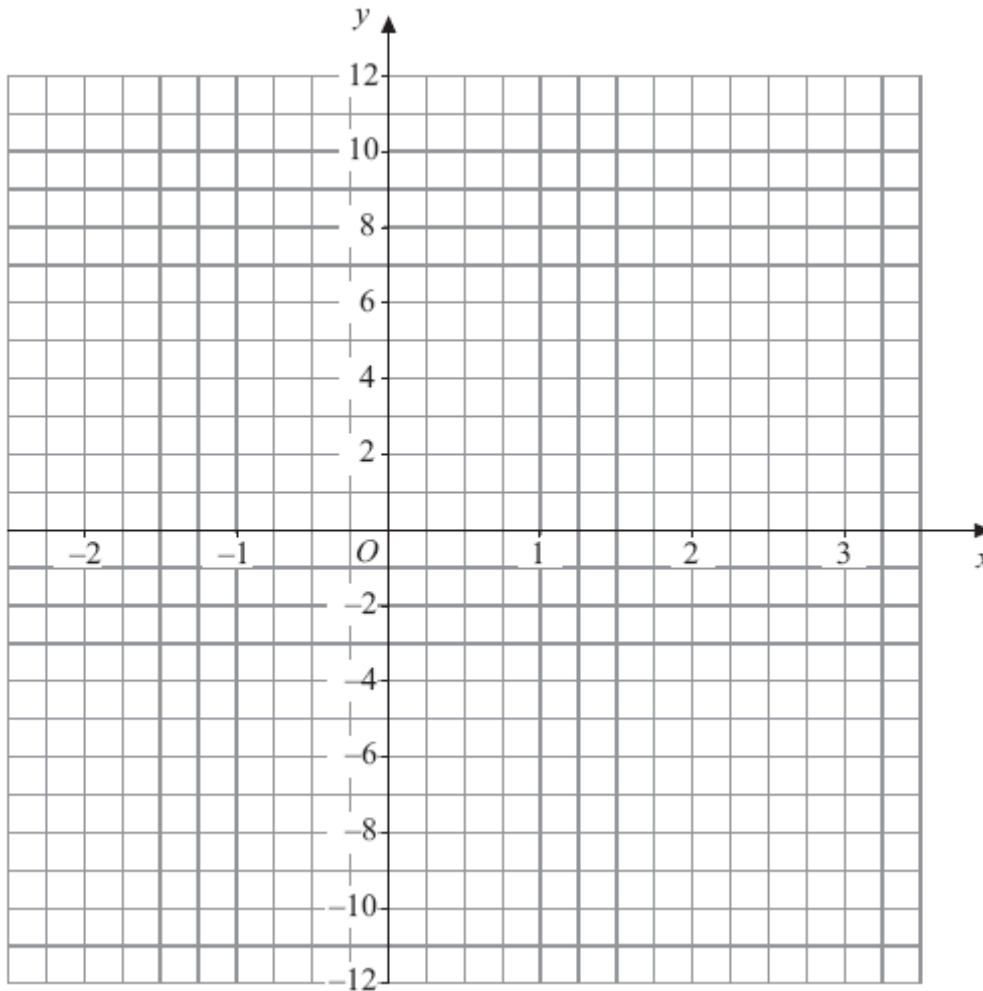
(Total for Question 13 is 4 marks)

14. (a) Complete the table of values for $y = 2x - 1$

x	-2	-1	0	1	2	3
y	-5		-1			5

(2)

(b) On the grid, draw the graph of $y = 2x - 1$, for values of x from -2 to 3



(2)



(Total for Question 14 is 4 marks)



15. Triangle **P** has been drawn on a grid.

(a) On the grid, draw an enlargement of the triangle **P** with scale factor 4 (2)



(Total for Question 15 is 2 marks)

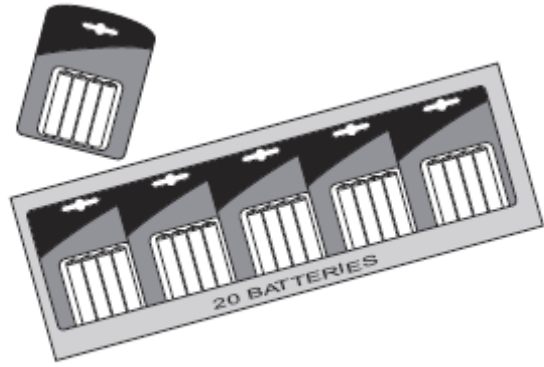


16. Batteries are sold in packets and boxes.

Each packet contains 5 batteries.
Each box contains 18 batteries.

Bill buys p packets of batteries
and b boxes of batteries.

Bill buys a total of N batteries.
Write down a formula for N in
terms of p and b .

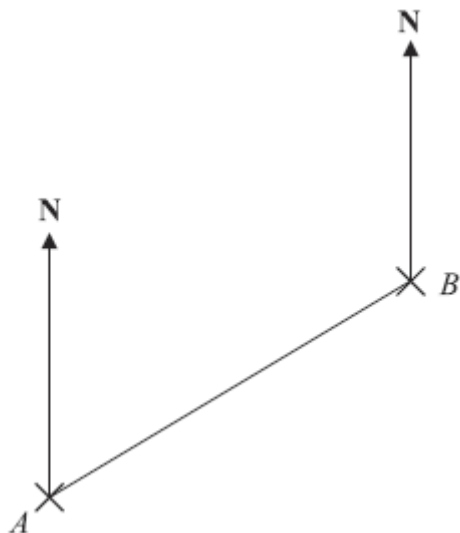


.....
(2)

(Total for Question 16 is 2 marks)



17. The diagram shows the positions of two telephone masts, *A* and *B*, on a map.



The bearing of B from A is 070° calculate the bearing of A from B.

.....^o
(2)

(Total for Question 17 is 2 marks)



18. (a) Expand $y(3y - 7)$

.....
(1)

(b) Factorise $x^2 + 8x$

.....
(2)

(c) Expand and simplify $2(x + 4) - 2(3x - 1)$

.....
(2)

(d) Solve $4(x + 2) = 9$

$x =$
(2)

(Total for Question 18 is 7 marks)

19. n is an integer such that $-2 \leq n < 4$

(a) List all the possible values of n .

.....
(2)

(b) Solve the inequality $6y \geq 2y + 10$

.....
(2)

(Total for Question 19 is 4 marks)



20. $\frac{3}{a} + \frac{2}{b} = \frac{1}{c}$

$a = 2\frac{1}{2}, b = 3\frac{1}{3}$

(a) Find the value of c .

.....
(4)

(Total for Question 20 is 4 marks)

END OF PAPER

