



SCHOLARSHIP EXAMINATION

MATHEMATICS

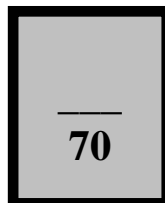
2013

Time: 1 hour

Name:

School:

Non Calculator



1. Two shops both sell the same type of suit.
In both shops the price of the suit was £180

One shop increases the price of the suit by $17\frac{1}{2}\%$.

The other shop increases the price of the suit by $22\frac{1}{2}\%$.

Calculate the difference between the new prices of the suits in the two shops.

£

(3)

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

Write down an expression for the total cost, in pence, of 2 compasses and 4 rulers.

..... pence

(2)

3. Work out an estimate for the value of

$$\frac{6.8 \times 191}{0.051}$$

.....

(3)

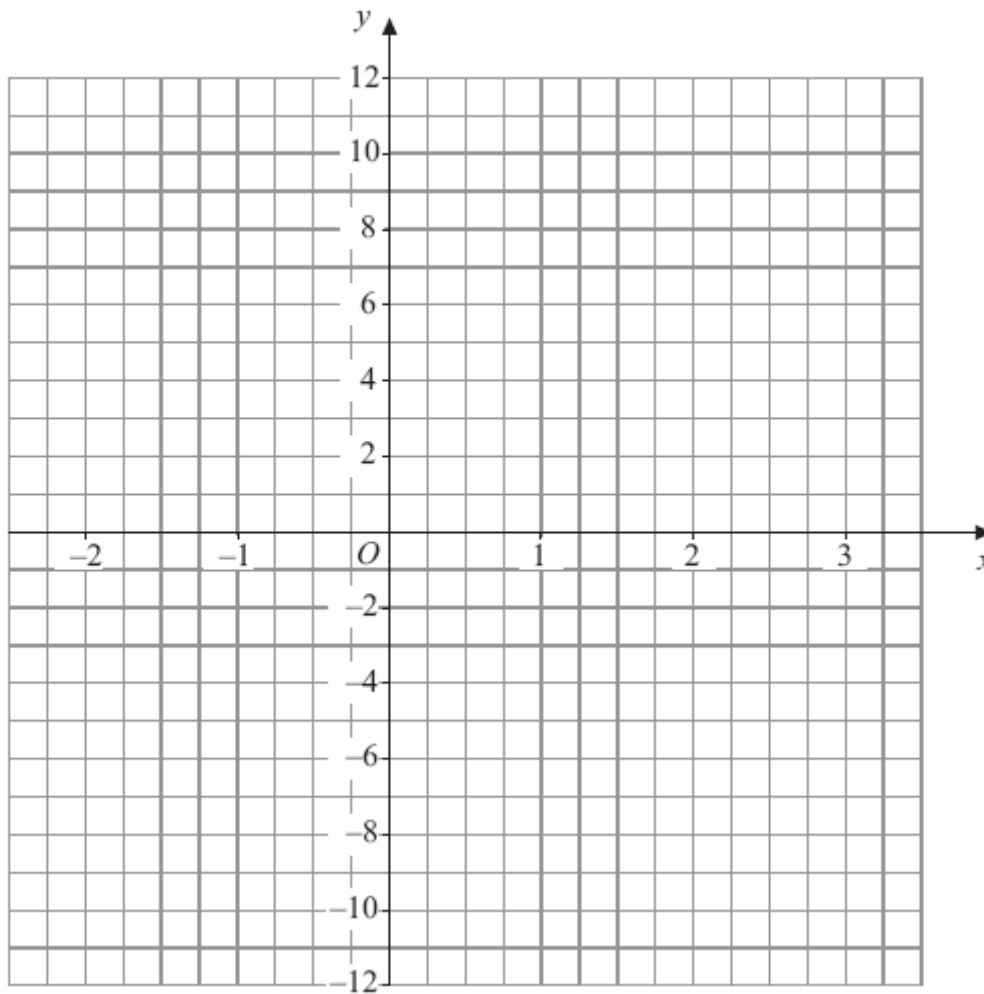


4. (a) Complete the table of values for $y = 4x - 3$

x	-2	-1	0	1	2	3
y	-11		-3			9

(2)

- (b) On the grid, draw the graph of $y = 4x - 3$, for values of x from -2 to 3



(2)



5. $P = 4k - 10$

$P = 50$

(a) Work out the value of k .

.....
(2)

$y = 4n - 3d$

$n = 2$

$d = 5$

(b) Work out the value of y .

.....
(2)

6. (a) Work out $\frac{2}{3} + \frac{4}{5} \times \frac{1}{2}$

.....
(3)

(b) Work out 423×12

You **must** show **all** your working.

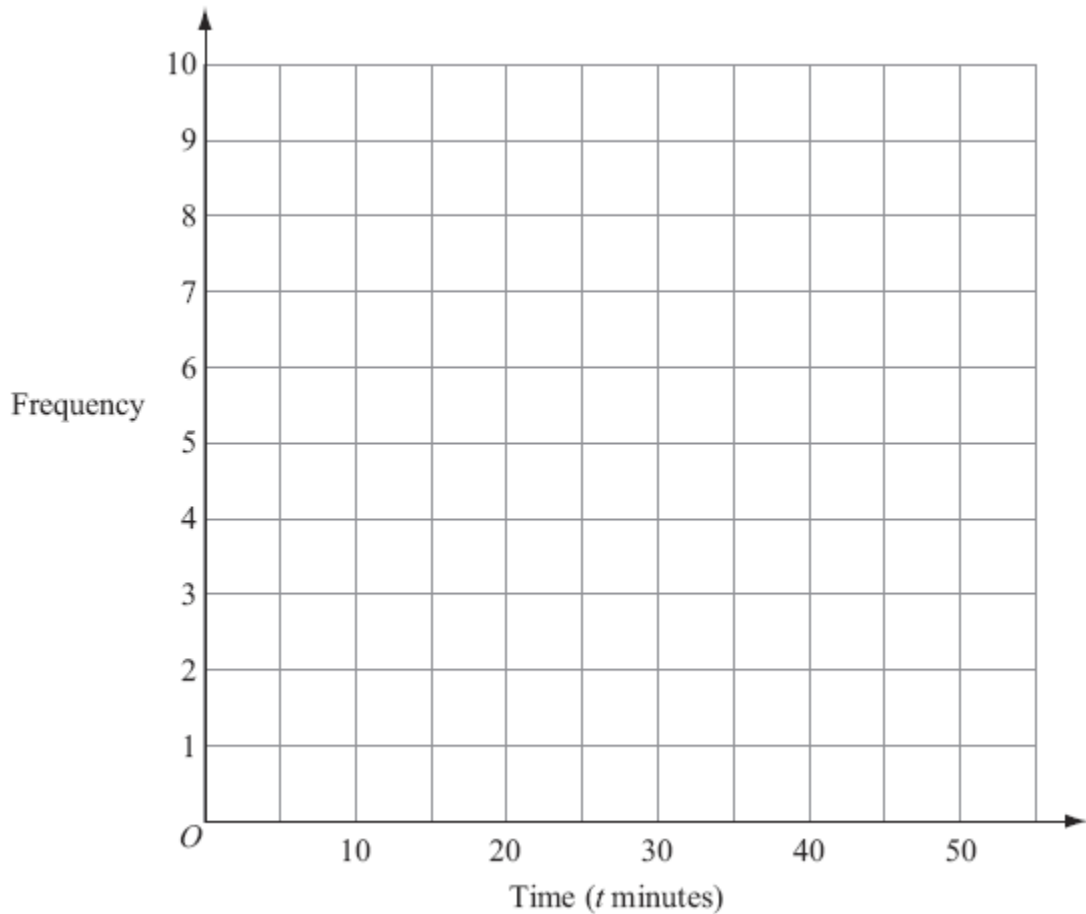
.....
(3)



7. 30 students took a test.
The table shows information about how long it took them to complete the test.

Time (t minutes)	Frequency
$0 < t \leq 10$	5
$10 < t \leq 20$	7
$20 < t \leq 30$	8
$30 < t \leq 40$	6
$40 < t \leq 50$	4

- (a) On the grid, draw a frequency polygon for this information.



(2)

- (b) Write down the modal class interval.

.....
(1)



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

(a) On the grid, draw an enlargement of the triangle **P** with scale factor 3

(2)



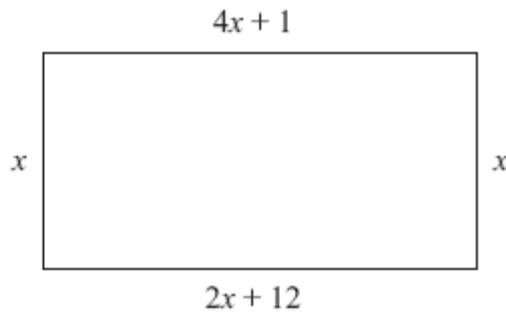
9. Write down the value of 5^0

.....
(1)



10.

Diagram **NOT**
accurately drawn



The diagram shows a rectangle.
All the measurements are in centimetres.

(a) Explain why $4x + 1 = 2x + 12$

.....
(1)

(b) Solve $4x + 1 = 2x + 12$

$x =$
(2)

(c) Use your answer to part (b) to work out the perimeter of the rectangle.

..... cm
(2)



11. Use the information that

$$322 \times 48 = 15\,456$$

to find the value of

(a) 3.22×4.8

.....
(1)

(b) 0.322×0.48

.....
(1)

(c) $15\,456 \div 4.8$

.....
(1)

12. $2x^2 = 2$

(a) Find a value of x .

.....
(2)

(b) Express 72 as a product of its prime factors.

.....
(2)

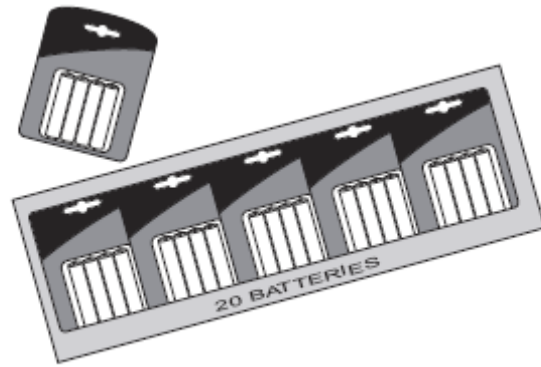


13. Batteries are sold in packets and boxes.

Each packet contains 4 batteries.
Each box contains 20 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 .



.....
(3)

14. There are 40 litres of water in a barrel.

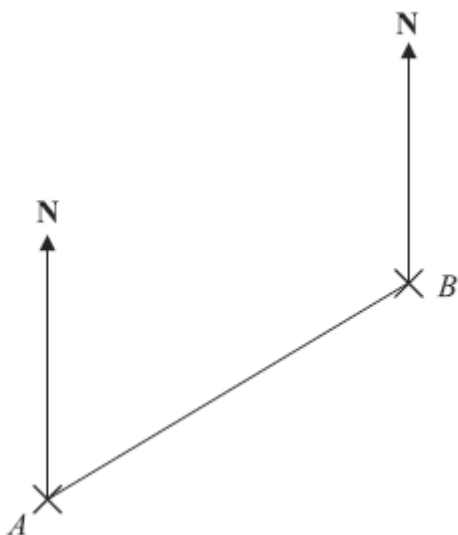
The water flows out of the barrel at a rate of 125 millilitres per second.

Work out the time it takes for the barrel to empty completely.

..... seconds
(3)



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



The bearing of *B* from *A* is 060° calculate the bearing of *A* from *B*.

.....^o
(2)



16. (a) Expand $y(2y - 3)$

.....
(1)

(b) Factorise $x^2 - 4x$

.....
(2)

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

.....
(2)

(d) Solve $3(x + 2) = 8$

$x =$
(2)



17. (a) A solid cube has sides of length 5 cm.

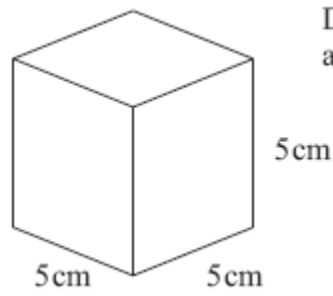


Diagram **NOT**
accurately drawn

Work out the total surface area of the cube.
State the units of your answer.

.....
(3)

The volume of the cube is 125 cm^3 .

- (b) Change 125 cm^3 into mm^3 .

..... mm^3
(2)



18. Solve the simultaneous equations

$$4x + y = -1$$

$$4x - 3y = 7$$

$$x = \dots\dots\dots y = \dots\dots\dots$$

(3)

19. k is an integer such that $-1 \leq k < 3$

(a) List all the possible values of k .

.....
(2)

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

.....
(2)



20. $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$

$v = 2\frac{1}{2}, u = 3\frac{1}{3}$

(a) Find the value of f .

.....
(3)

END OF PAPER

