Centre Number

71

Candidate Number

General Certificate of Secondary Education
January 2010

Mathematics

Module N5 Paper 2
(With calculator)
Foundation Tier

[GMN52]

GMN52

FRIDAY 15 JANUARY

10.45 am – 11.45 am

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in this question paper.
Answer **all sixteen** questions.
Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 56.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
You should have a calculator, ruler, compasses, set-square and protractor.
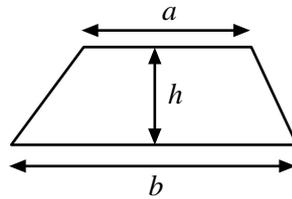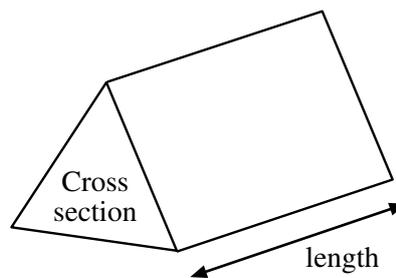The Formula Sheet is on page 2.

5420

Formula Sheet

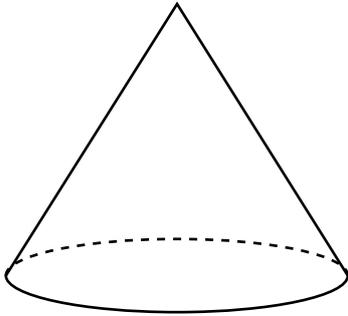**Area of trapezium** $= \dfrac{1}{2}(a+b)h$

Volume of prism = area of cross section × length

1 Choose from the following to name the solids below.

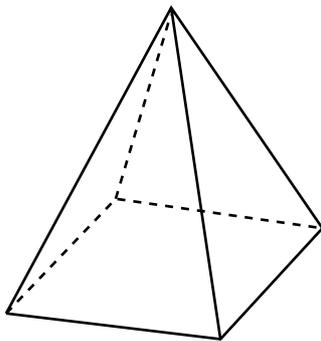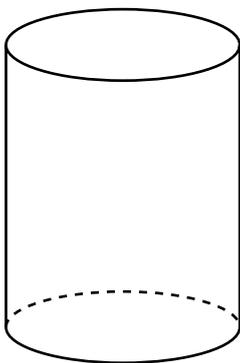| Cylinder | Cone | Triangle | Sphere |
| Triangular prism | Rectangle | Pyramid |

(a)

Answer _____ [1]

(b)

Answer _____ [1]

(c)

Answer _____ [1]

5420

3

[Turn over

2 A plumber prices a job using the formula

Total price = call-out charge + rate per hour × number of hours job takes to complete.

(a) If the call-out charge is £60 and he charges £45 for each hour he works, use the formula to work out the total price of a job which takes three hours to complete.

Answer £ _____ [2]

(b) The same plumber prices another job at £285
Work out how many hours he expects this job will take to complete.

Answer _____ hours [2]

3 **(a)** Jim is paid £6 per hour for 30 hours work from Monday to Friday and double the hourly rate for four hours on Saturday.
How much does he earn for the week's work?

Answer £ _____ [3]

Examiner Only	
Marks	Remark

5420   **4**

(b) John works the same hours as Jim.
His rate is £7.26 per hour from Monday to Friday and 'time and a half'
on Saturday.
How much **more** does he earn per week?

Answer £ _____ [5]

---

4 Classify the probability of the following events as

certain, **impossible**, **evens**, **unlikely** or **likely**

(a) April will have 31 days.

Answer _____ [1]

(b) Someone you know will win the National Lottery jackpot.

Answer _____ [1]

(c) The sun will rise tomorrow.

Answer _____ [1]

(d) A tossed coin will show heads.

Answer _____ [1]

5 Complete the pattern below.
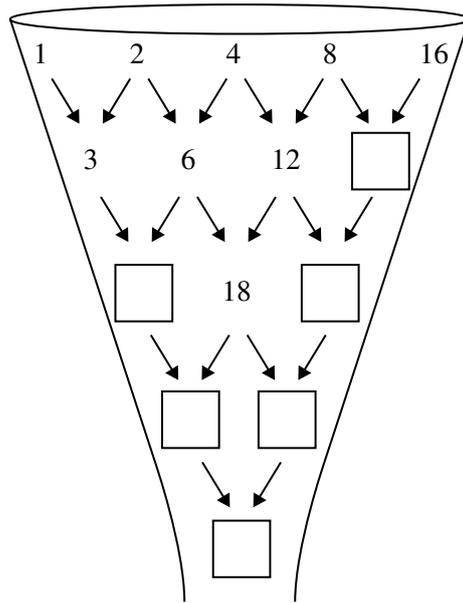
[3]

6 The distance between two towns is 24 kilometres. How many miles is this?

Answer _____ miles [2]

5420

6

7 A probability scale is drawn below.

```
  P  Q                    R                    S
  |  |                    |                    |
  ↓  ↓                    ↓                    ↓
  └──────────────────────────────────────────┘
  0                      0.5                   1
```
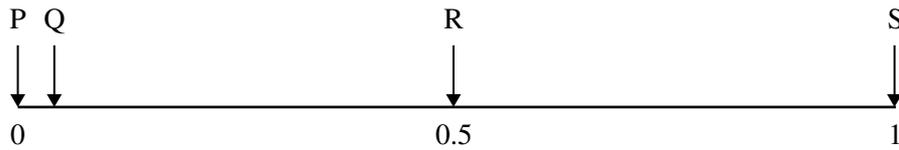
(a) What one word can be used to describe the probability at

   (i) Q,   Answer _____ [1]

   (ii) S?   Answer _____ [1]

(b) Event T is 'a dice is thrown and shows a number greater than 1'
Event U is 'a month in the year selected at random begins with the letter J'

Indicate with arrows and labels event T and event U on the probability scale above.   [2]

8 Use the formula $F = 7m + 5n$ to work out the value of F when $m = 8$ and $n = 9$

Answer $F =$ _____ [2]

7

9 **(a)** Add one square to the following diagram so that the complete shape has rotational symmetry of order 2
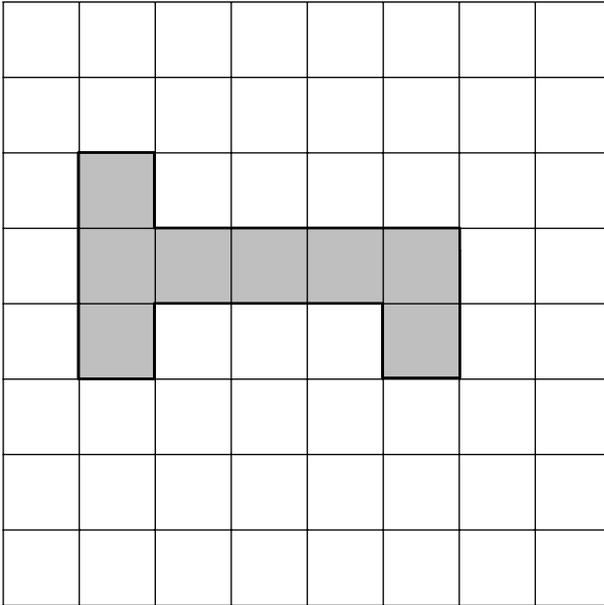
[1]

(b) What six-sided shape has rotational symmetry of order 6?

Answer _____ [1]

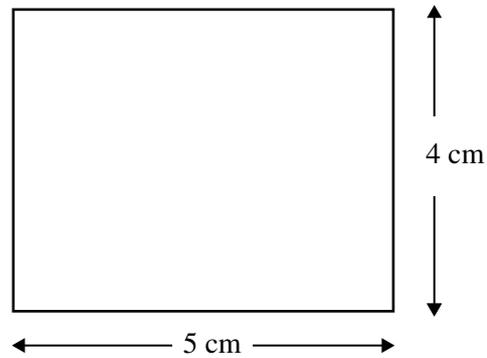**(c)** Name two four-sided shapes with rotational symmetry of order 2

Answer _____, _____ [2]

_____

10 Jean buys £800 worth of euro at the rate of €1.234 = £1 for a city break in Paris. She spends $\frac{3}{4}$ of her euro and changes the rest at the rate of €1.323 = £1.
How much should she receive?
Give your answer to the nearest penny.

" Í 'y y y @xkgy qpekskgu@eqo Iko i Irct kuhxght 3465u0ri

Answer £ _____ [3]

5420   **8**

11 (a)

4 cm

5 cm
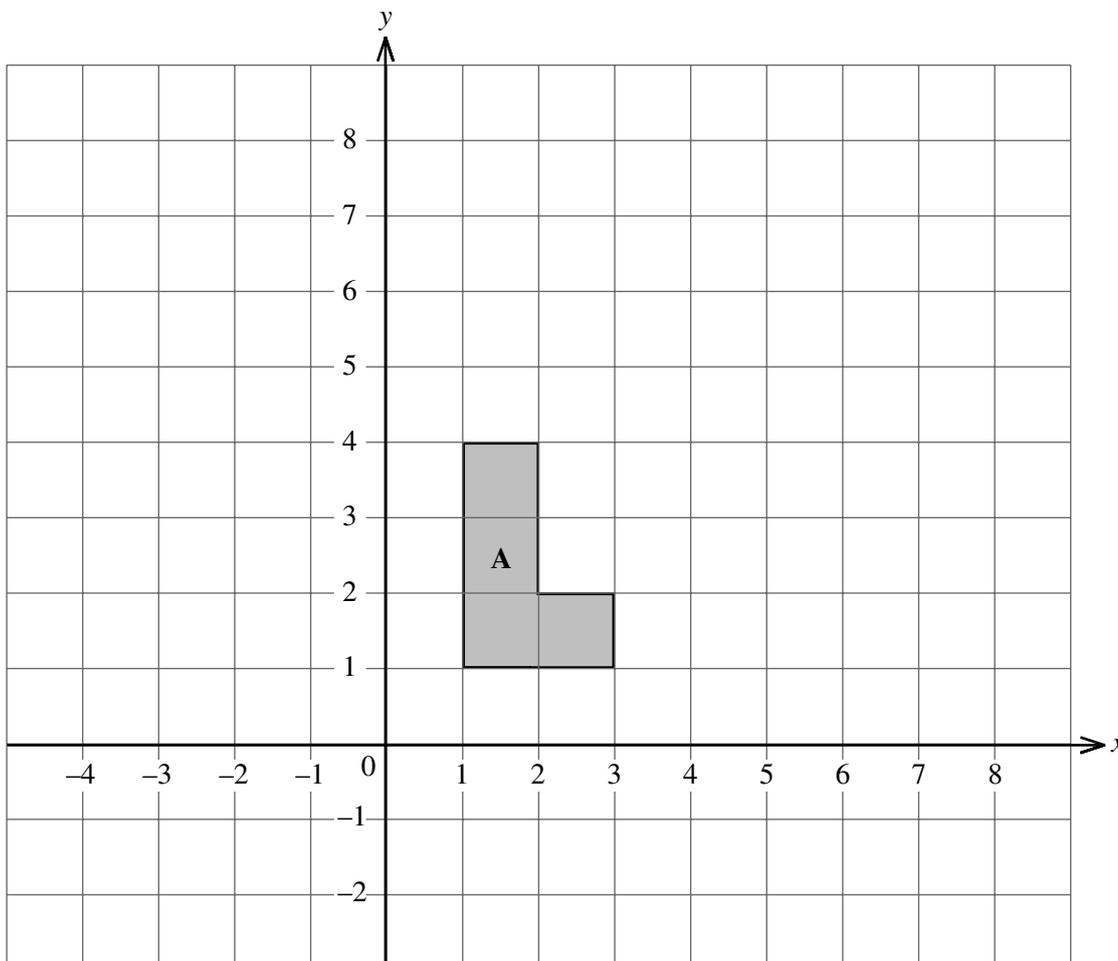
The rectangle is to be enlarged by a scale factor of 3.

Write down the measurements of the enlarged rectangle.

Answer _____ cm, _____ cm [2]

(b) Enlarge the shape A by scale factor 2, from the centre C (–1, 2).

[3]

12 A box contains 6 red, 4 black and 10 blue pens.
A girl selects a pen at random.
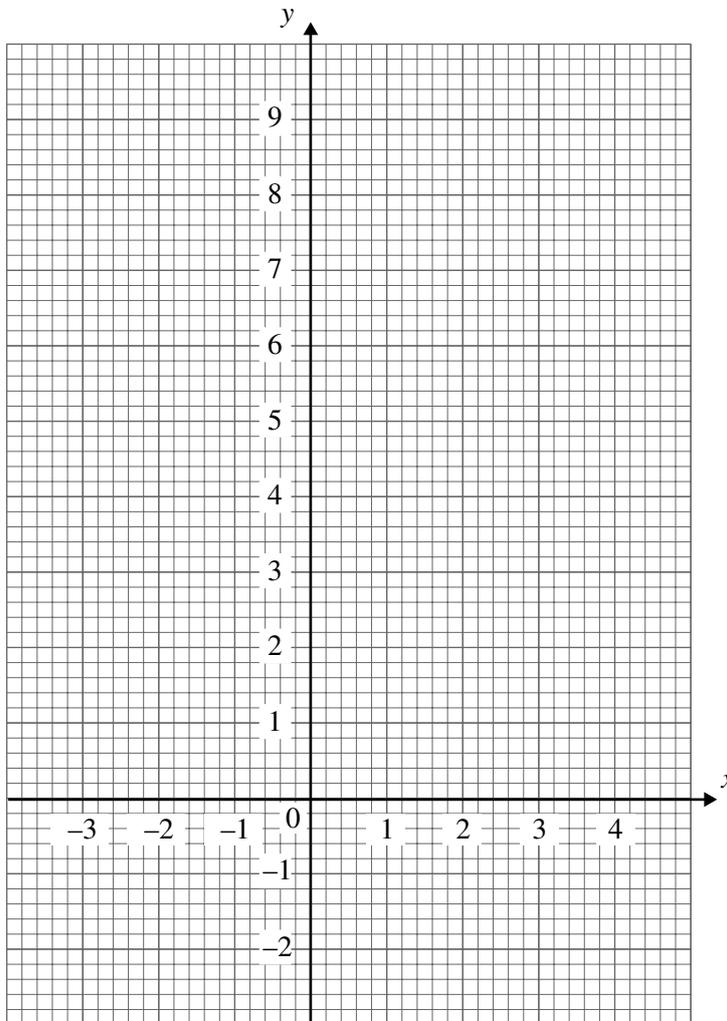What is the probability that the girl selects a black pen?

Answer _____ [2]

13 (a) Complete the table below for the curve $y = x^2 - 1$

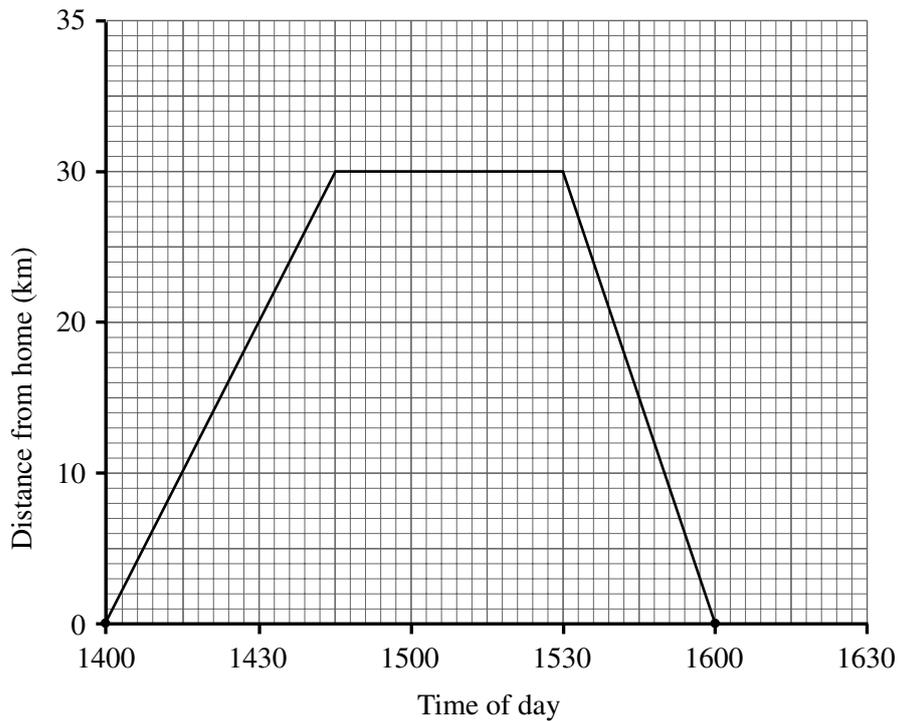| x	-2	-1	0	1	2	3
y	3		-1	0	3	8

[1]

(b) Hence draw the graph of $y = x^2 - 1$ on the grid below.

[2]

14 Seamus drove from his home to the airport to collect his daughter.
He waited for her to arrive and then he drove home.
Here is a distance–time graph for his complete journey.

(a) For how many minutes did Seamus have to wait at the airport?

Answer _____ minutes [1]

(b) Work out his average speed on his journey **to** the airport.
Give your answer in kilometres per hour.
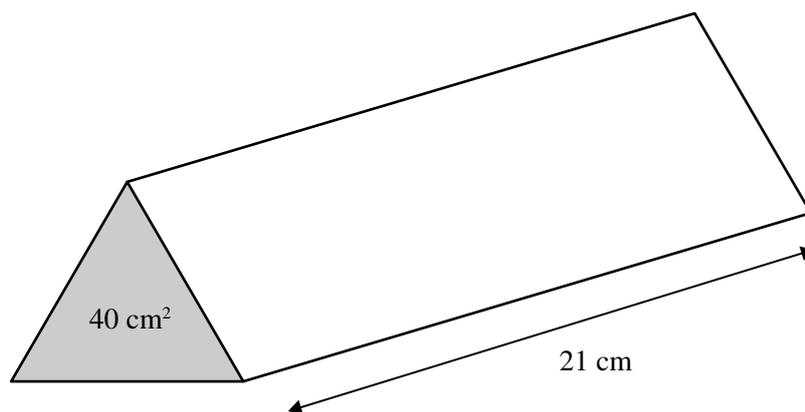
Answer _____ km/h [2]

15

© Oceania Cruise Line

A cruise ship carries fuel in three tanks whose capacities are in the ratio 3 : 5 : 6 The capacity of the smallest tank is 162 000 gallons. Calculate the total capacity of the three tanks.

Examiner Only	
Marks	Remark

Answer _____ gallons [2]

16 A solid triangular prism of mass 7900 g has a cross-section area of 40 cm^2 and length 21 cm.

40 cm^2

21 cm

Calculate the density of the prism.

Give your answer to an appropriate degree of accuracy.

Answer _____ g/cm^3 [4]

5420

12

THIS IS THE END OF THE QUESTION PAPER

1312-049-1