



The Charles Kalms • Henry Ronson
Immanuel College
Academic Excellence • Jewish Tradition • Contemporary Society

SPECIMEN Entrance Examination
for entry in September 2010

Mathematics

Time Allowed: 1 hour

Name _____

Instructions

- Calculators **may not** be used.
- Complete Sections A **and** B
- Do all your written work on this paper. If extra paper is needed please ask, write your name on it and attach to your script afterwards.
- Answer as many questions as you can. Show your working as there may be marks for working out. If you cannot do a question, leave it out and go on to the next question.

SECTION A

1. Find the sum of $1908 + 453 + 23$

Answer _____ (1)

2. Find the product of 34×9

Answer _____ (1)

3. Apples cost 9p each. How many can I buy for £1.53?

Answer _____ (2)

4. Write down two pairs of whole numbers which multiply to give 91.

Answer _____ and _____ or _____ and _____ (4)

5. In the number 68 950 what are the values of the numbers 6 and 5.

Answer 6 = _____ (1)

Answer 5 = _____ (1)

6. A bookshelf can hold 18 books of width 8 cm. How many books of width 6 cm can it hold?

Answer _____ (2)

7. If a triangle with equal sides and equal angles has a perimeter of 30, what length is each of the sides? What is the name of this special triangle?

Answer _____ (1)

Answer _____ (name) (1)

8. Write the following in 24 hour clock

a) 3.30pm

b) 5.45 am

c) 12.30am

Answer _____(1)

Answer _____ (1)

Answer _____(1)

9. I shared half of my birthday cake with friends. Later on whilst watching television I ate a half of what was left. How much of the total cake remained?

Answer _____ (2)

10. If I saved 15 % on a television costing £200 how much would it cost?

Answer _____ (2)

11. Are the following statements sensible? Write 'Yes' or 'No'

A lorry weighs 2000 g.	_____ (1)
A fifteen year old girl weighs 50 kg.	_____ (1)
Blackpool Tower is 200 cm high.	_____ (1)
A horse is 15 m high.	_____ (1)

12. A number is missing from this sequence. What is it?

3, 5, __, 15, 23, 33

Answer _____ (1)

13. The temperature recorded on a winter's day in 5 different European countries are shown below

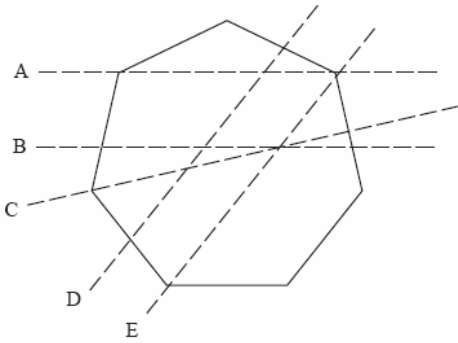
-15 ° C , 20° C , -4° C , 11° C , 18°C

What is the difference in temperature between the hottest and the coldest country?

Answer _____ (1)

14.

Which line is a line of symmetry?



Answer _____ (1)

16.

6 22 27 63 72 169

Which number from this list is

- (a) a square number
- (b) a cube number
- (c) a factor of 24
- (d) a multiple of 24
- (e) divisible by 7?

(5 marks)

17. In the sale I bought a DVD for £4.37 and two CD's for £6.72. How much did I spend altogether?

Answer £ _____ (2)

SECTION B

Q1) If 5 miles is approximately 8 kilometers, convert the following giving approximate answers

a) 24 kilometres

b) 20 miles

c) 12 kilometers

Answer _____ (1)

Answer _____ (1)

Answer _____ (1)

Q2) What is the smallest number that 2,3,6,and 10 will all go into exactly?

Answer _____ (2)

Q3) A recipe for Mathematical Pie serves 4 people and requires 50 grams of sultanas. How many grams of sultanas would be needed to make a larger pie for 6 people?

Answer _____ (3)

Q4) Use the fact that $53 \times 72 = 3816$ to write down the values of;

$$5.3 \times 72 =$$

Answer _____ (1)

$$530 \times 7200 =$$

Answer _____ (1)

$$3816 \div 53 =$$

Answer _____ (1)

$$338160 \div 0.72 =$$

Answer _____ (1)

Q5) In 25 minutes, through what angle does the minute hand of a clock pass?

Answer _____ (2)

Q6)

A square has a perimeter of 96cm.

a) Calculate the length of one side

Answer _____ (2)

b) Find the area of the square

Answer _____ (2)

c) Give a sketch, not to scale, of a rectangle, showing the length of its sides, which has the same area as the square.

Answer (2)

Q7) Numbers like 13 that have exactly two factors are called prime.

List all the prime numbers between 20 and 30

Answer _____ (2)

Q8) My brother, sister and I are given a bag of sweets. My brother has first pick and greedily eats two-thirds of them. He hands the bag to my sister who eats three-quarters of the remaining sweets. There are just 6 sweets left for me. How many sweets did the bag contain to begin with?

Answer _____(4)

Q9). **Holiday Insurance Premiums**

Free for children under 4 years, reduced rate for children aged between 4 and 13 years inclusive.

	Adults	Children
Up to 3 days	£10.00	£6.00
Up to 7 days	£12.40	£7.60
Up to 9 days	£13.80	£8.90
Up to 17 days	£19.80	£12.20
Up to 24 days	£23.40	£15.40
Up to 31 days	£26.00	£18.00

The table shows holiday insurance premiums.

- a) What is the holiday insurance premium for an adult for
- i) a 12 day holiday _____ (1)
- ii) a 4 week holiday _____ (1)
- b) Calculate the total holiday insurance premium for a family of five (mother, father, son aged 9, daughter aged 4 and son aged 1), taking a 2 week holiday.

Answer _____ (3)

Q10)

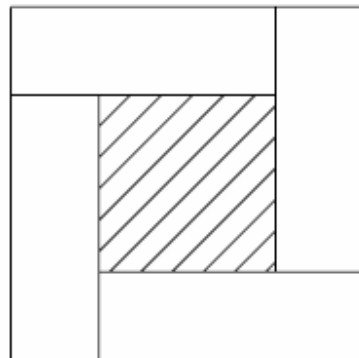
Three bus services stop at my bus stop. Service A departs every 3 minutes, service B every 5 minutes and service C every 8 minutes.

If all three services leave my stop at 10.00 a.m., at what time will they next leave my stop together? (Assume that all three services always run on time).

Answer (3 marks)

Q11)

Four rectangles each of length 27 cm and width 13 cm are arranged to form the square shape shown below (the diagram is not drawn to scale).



Find

a) The perimeter of the square shape

Answer _____ cm (2)

b) The area of the shaded inner square

Answer _____ cm² (2)

Q12)

My calculator is broken, only the following keys work:

2

7

x

-

=

Using only these keys show how you can make sums that come to each of the numbers from 1 to 10

(1 mark for each correct answer)