SEVENOAKS SCHOOL

YEAR 7 (11+) ENTRANCE EXAMINATION
January 2014
for entry in September 2014

MATHEMATICS

Name: ……

School: …….. .

Time allowed: 1 hour

Equipment needed: Pen, pencil, eraser and ruler.
Calculators are **not** permitted.

Information for candidates:

1. Write your name and school on this sheet.
2. Write your answers on the question paper in the space provided.
3. There are 18 questions in this paper, try to answer all of them, but don't worry if you don't complete the paper. If you get stuck, just go on to the next question and if you have time at the end come back to the one(s) you left.
4. There are 60 marks in total available for this paper. Marks for each question are shown in square brackets [ ] after the question.
5. Show all your working. You may be awarded marks for correct working even if your final answer is incorrect, and a correct answer unsupported by correct working may not receive full marks.

1. Evaluate the following:

a) $207 + 1989 + 24.2$

Answer …….. [2 marks]

b) $1806 - 924$

Answer …….. [2 marks]

c) 624×37

Answer …….. [2 marks]

d) $7322 \div 14$

Answer …….. [2 marks]

2. Evaluate

a) $\frac{3}{4} + \frac{1}{3}$

Answer …….. [2 marks]

b) $\frac{5}{7} + \frac{2}{5}$

Answer …….. [2 marks]

c) $\frac{4}{9} \div \frac{5}{11}$

Answer ……. [2 marks]

3. The temperature of the items in a freezer is −18℃. A packet of peas is taken out. After half an hour their temperature has risen by 11℃. What is their new temperature?

Answer ……. [1 mark]

4. Ann went to the cinema. The film started at 11:55 A.M. and lasted 117 minutes. What time did the film end?

Answer ……. [2 marks]

5. Fill in the missing numbers in the following sequences:

(a) 2, 3, 5, 8, __ , __ , 23

Answer ……. [1 mark]

(b) 35, 29, 23, __ , __ , 5

Answer ……. [1 mark]

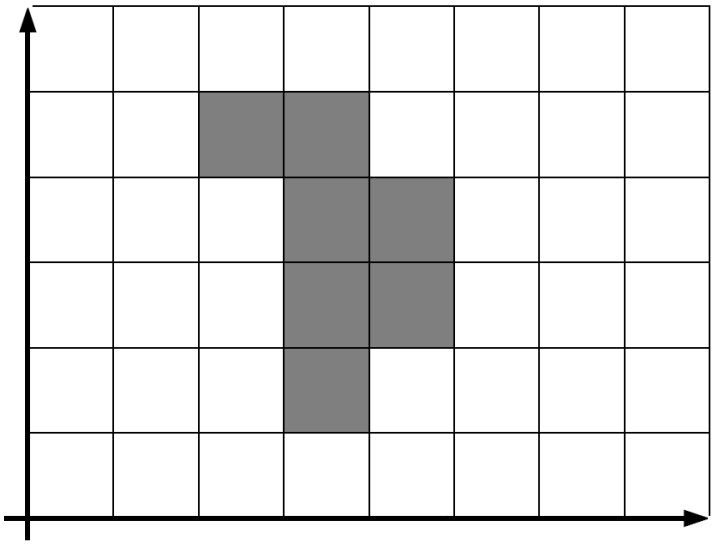
(c) 1000, 100, 10, __ , __

Answer ……. [1 mark]

6. Put these in order, starting with the smallest: $\frac{7}{9}$, 0.7, $\frac{770}{1000}$, 75%

Answer …….…… [2 marks]

7. Shade in one square to this pattern to give it one line of symmetry and draw on the line of symmetry.



[2 marks]

8. Two numbers have a sum of 87. The larger of the numbers is twice the smaller. What are the two numbers?

Answer …….. [2 marks]

9. Find the value of x for each of the following equations:

(a) $5x - 8 = 27$

Answer ..... [1 mark]

(b) $5(2x + 4) = 50$

Answer ..... [2 marks]

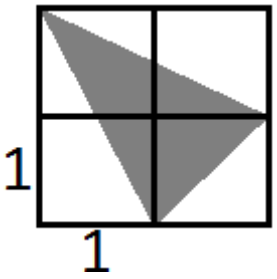
(c) $12x = 5x + 28$

Answer ..... [2 marks]

(d) $\frac{5x}{4} + 3 = 13$

Answer ..... [2 marks]

10. Each square is one square unit. What is the area of the shaded triangle?

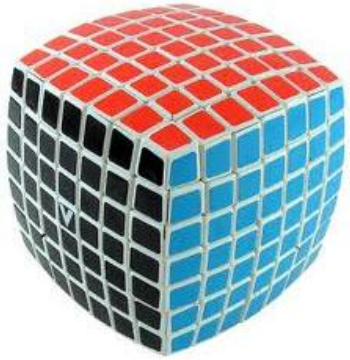


Answer ..... [3 marks]

11. My vegetable patch is rectangular in shape and measures 200 x 450 centimetres. I have planted vegetables in 2/3 of the patch. One half of that contains carrots. What area of the patch has been planted with carrots?

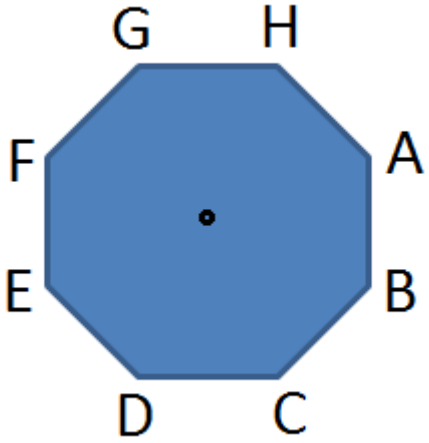
Answer …….. [3 marks]

12. A 7x7x7cube is painted, and then cut into 1x1x1 cubes.
How many of these cubes are painted on exactly two sides?



Answer …….. [2 marks]

13. The shape is turned 270° clockwise, and then 45° anticlockwise.
Find the new position of point A.



Answer …….. [2 marks]

14. Bella is given £50 for her birthday. She spends £37.50 on clothes. She then goes to the cinema with a friend, but as they have a 2 for 1 voucher, they only spend £5.40 between the two of them which they both pay half. She buys some popcorn and a drink for £3.20.

a) How much money does Bella have left?

Answer …….. [3 marks]

b) Bella's friend wants to go out for supper. Bella knows that she needs to save £2.50 for the bus home. Assuming Bella and her friend both pay an equal amount; can Bella afford any of the food deals below? If so, which one?

DEAL 1:
Buy one meal for £7, get the second half price.

DEAL 2:
10% off all dishes costing £5 or more.

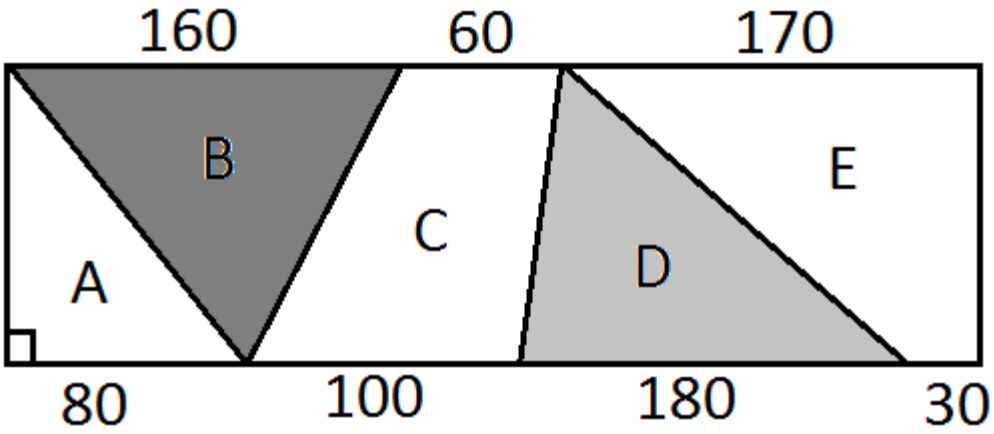
DEAL 3:
Buy one get one free on all dishes costing £8 or more.

Answer …….. [3 marks]

15. A man is 30 years older than his youngest son. In 17 years he will be twice his son's age. How old is the son?

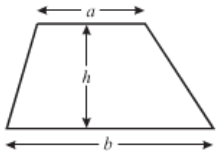
Answer …… [3 marks]

16. Which two shapes have the same area?



This may be helpful:

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



Answer …… [3 marks]

17. Matthew reads at an average rate of 30 pages per hour, while Alex reads at an average rate of 40 pages per hour. If Matthew starts reading a novel at 4:30 PM, and Alex begins reading the same novel at 5:20 PM, at what time will they be reading the same page?

Answer ……. [3 marks]

18. Using exactly four fours, any of the operations $+ \ - \times \div$ and brackets if required, can you make an expression whose value is 5.

Example:
$0 = 4 \ \div 4 \ \times 4 - 4$

Answer ……. [2 marks]

[Total: 60 marks]

END OF PAPER