Royal Russell

YEAR 7 ENTRANCE EXAMINATION

MATHEMATICS

Practice Questions

Equipment: pen, pencil, ruler

No Calculator

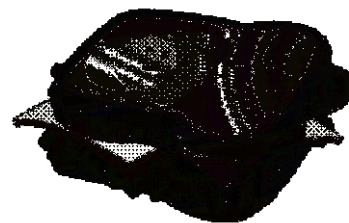Remember to show workings where appropriate

1.   Look at the menu below:

Tea	60p
Coffee	80p
Cola	60p
Sandwiches	£1.80
Beef burger	£2.95

(a) Work out the cost of three beef burgers.

……………………………………………………………………………………………….

……………………………………………………………………………………………….

(b) Work out the cost of two sandwiches and five cups of coffee.

……………………………………………………………………………………………….

……………………………………………………………………………………………….

(c) How many cups of tea can be bought with £5?

……………………………………………………………………………………………….

……………………………………………………………………………………………….

6 marks

2.   Work out the next three numbers in each of these sequences:

(a) 20   17   14   ………   ………   ………

(b) 1   4   9   16   ……..   ………   ………

(c) 5   6   8   11   15   20   ………   ………   ……….

5 marks

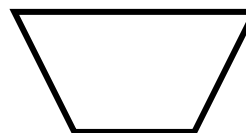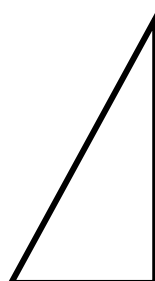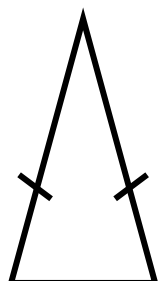3.   How many cubes would you need to build the following cuboid?
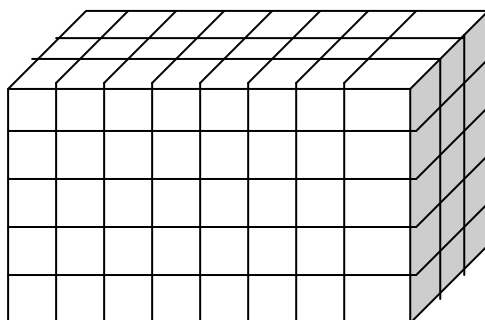
Volume = …………………..

2 marks

4. (a) For each of the shapes below, choose a description and write it on the dotted line:

        (i) parallelogram   (ii) isosceles triangle (iii) trapezium
        (iv) scalene triangle (v) kite   (vi) pentagon

   (b) Draw in any lines of symmetry that the shapes have.

………………………   ………………………   ………………………   *6 marks*

5. An equilateral triangle has three sides the same length. What is the size of one of the angles?

2 marks
……………………………………………………………………………………

6. (a) Convert 13.2 metres into centimetres   …………………

   (b) Convert 430 millimetres into centimetres   …………………

   (c) Convert 2.1 kilometres into metres   …………………
3 marks

7. (a) What is $\dfrac{1}{4}$ of 68 ?   …………………

   (b) What is $\dfrac{3}{5}$ of 20?   …………………

   (c) What is 0.1 of £40 ?   …………………

   (d) Simplify the fraction $\dfrac{24}{36}$ …………………

   (e) What is 0.03 re-written as a fraction ?   …………………

   (f) Find 1% of 200 kg   …………………

   (g) Work out $\dfrac{1}{2}+\dfrac{1}{4}$ …………………   *9 marks*

8.   Work out the answers to the following. Show your workings clearly.

   (a)   23.1 – 16.7   (b)   821 x 16

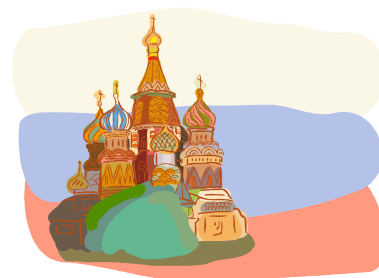   (c)   4.1 x 7   (d)   42.3 ÷ 3

5 marks

9.   In New York it is 23°C and in Moscow it is –5°C. What is the temperature difference?

   2 marks

   …………………..………………………..

10.   If $a = 5$ and $b = 10$

   Work out:

   (i) $b - a$ ……………………………………………………………………

   (ii) $4b$ ……………………………………………………………………

   (iii) $2a^2$ …………………………………………………………………….   *4 marks*

11.   (a) Write down the factors of 25   …………………………………………………

   (b) Write down the factors of 30   . ……………………………………………
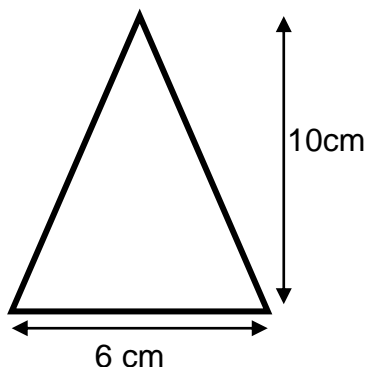
   (c) Write down the highest common factor of 25 and 30 ………………

   (d) Write down the prime factors of 30   …………………………………

   5 marks

12.   Calculate the area of the triangle (remember to write down the correct units)
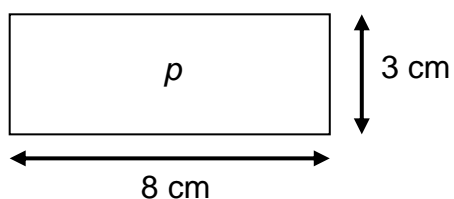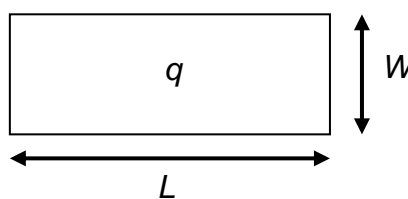
(a)

10cm

6 cm

....

....

....

....

(b) Find the perimeter of the rectangles *p* and *q*

(i)

p   3 cm

8 cm

(ii)

q   *W*

L

p...   *q*...

....

....

....

7 marks

13.   (a) In a survey 30% of people were left handed only, 10% were both left and right handed. What percentage were right handed only ?

    ....

(b) Find 50% of 80   ....

(c) 400 × 30   ....

4 marks

14.   Draw the lines of symmetry on the shape below :

1 mark

15. (a) How many pieces of ribbon of 30cm length can be cut from a piece of length 7 m ?

………………………………………………………………………………………

………………………………………………………………………………………

(b) How many cm of ribbon are left over ?………………………………..

………………………………………………………………………………………

………………………………………………………………………………………
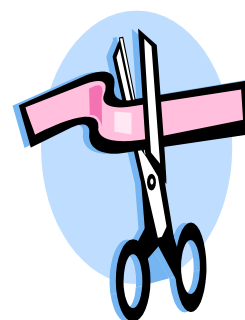
3 marks

16. Work out:

(a) $10 - 2 \times 3$ …………………………………………………………..

(b) $4 \times (8 - 2)$ …………………………………………………………*2 marks*

17. Solve:

(a) $x + 7 = 12$

………………………………………………………………………………

………………………………………………………………………………

(b) $10 - x = 6$

………………………………………………………………………………

………………………………………………………………………………

(c) $3x + 7 = 46$

………………………………………………………………………………

………………………………………………………………………………

(d) $\dfrac{x}{2} + 1 = 7$

………………………………………………………………………………

………………………………………………………………………………

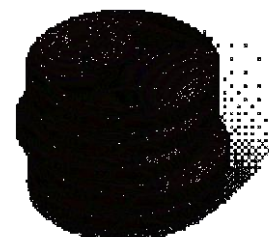*6 marks*

18.   The Archer family has 4 children who receive £2, £5, £3 and £2 pocket money each week.

(a) Calculate the average pocket money (use the "mean" average).

………………………………………………………………………………….

………………………………………………………………………………….

(b) Calculate the range of pocket money.

……………………………………………………………………………

……………………………………………………………………………

(c) The Jones family have 5 children who each receive an average of £3.50 a week and the range of amounts is £1.
Compare the amounts given to the children in these two families.

……………………………………………………………………………

……………………………………………………………………………   *5 marks*

19.   Alex and Emma buy the same type of bike.

Alex pays £169.99 cash from his birthday money.

Emma pays a deposit of £70.00 and then pays instalments of £10 per month over the course of one year (12 months).

Who pays the most and by how much ? Show all of your working clearly.

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

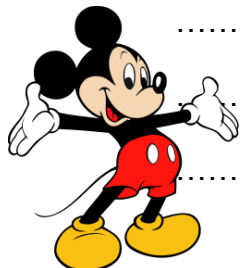……………………………………………………………………………

3 marks

20. The entry prices at a theme park are: Adults £20.00 & Children £15.00.

A group visited the theme park and were charged £105.00. How many adults & children were in the party? There was at least one adult.

Show all of your working clearly.

…………………………………………………………………………………….

…………………………………………………………………………………….

…………………………………………………………………………………….

4 marks

21. Mr Green is organising a school trip. In Year 5 there are 53 pupils and in Year 6 there are 46 pupils. There will also be 28 adults.

Mr Green has two options:

Apple Coaches

Our coaches seat 41
Cost £200 per day

Orange Coaches

Our coaches seat 44
Cost £250 per day

Help Mr Green find the best deal. Show your workings & give your choice.

……………………………………………………………………………………

…………………………………………………………………………………….

…………………………………………………………………………………….

…………………………………………………………………………………….

…………………………………………………………………………………….

…………………………………………………………………………………….

5 marks

22. Mrs Walker is planning a party for her grand-daughter and there will be 70 children in total.

Each child will have a party bag to take home with a lollipop and a toy.

Empty party bags are sold in packs of 12 and cost £2 per pack.
Lollipops are sold in packs of 8 and cost £4 per pack.
Toys are sold in packs of 9 and cost £10 per pack.

As a special new year offer, all prices are reduced by one quarter.

How many packs of each item will she need to buy and what will be her total cost? Show all your working clearly.

…………………………………………………………………………………….

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………   *6 marks*

23. Mrs Suzie needs to cover a floor measuring 3m by 2m. There are three possible options:

Acorn Tiles 50 cm × 50 cm Cost £4 each.	Beeching Tiles 60 cm × 40 cm Cost £3 each.	Carpet £14 per square metre Fitting cost £30

Which option is the cheapest? Show all your workings & explain clearly.

…………………………………………………………………………………….

…………………………………………………………………………………….

…………………………………………………………………………………….

…………………………………………………………………………………….

…………………………………………………………………………………….   *5 marks*
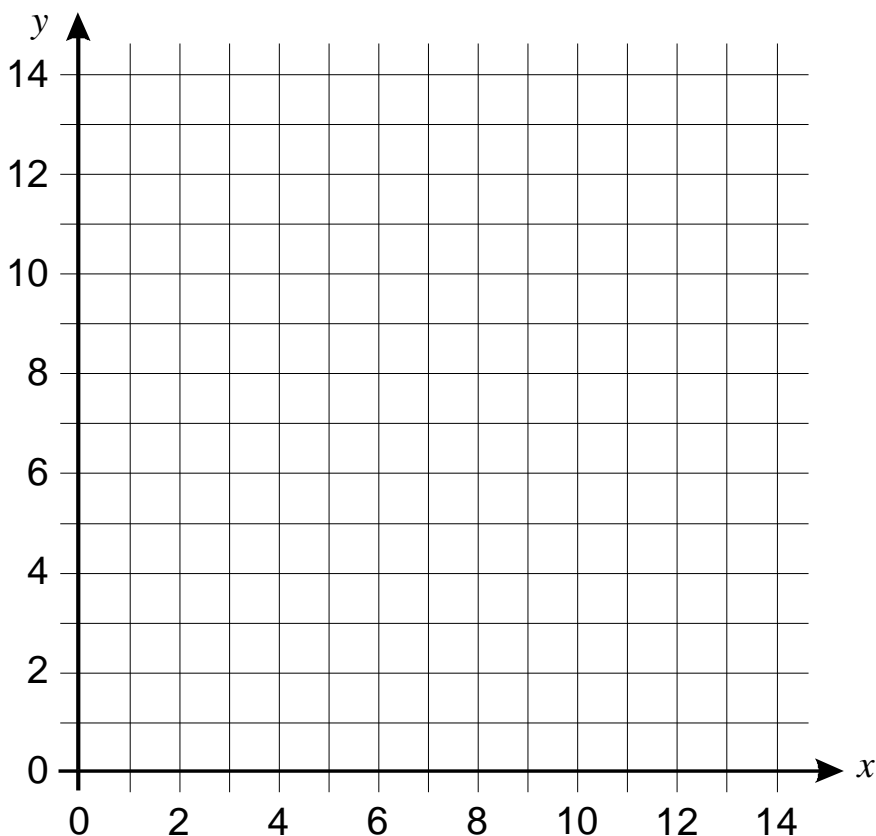
24.   (a) Plot the points (8, 12) and (5,12) on the grid below and join the points up to make a straight line.

(b) Tick the correct statement:

This line is horizontal   ☐   This line is vertical   ☐   *3 marks*

25.   In a dancing competition, the four judges gave marks ranging from –5 to 5, (whole numbers). There were 4 competitors.

Andrew got <u>top marks</u> from every judge.
Brian's score was 4 less than Andrew.
Carla and Donna both had the same final score of 7.

Complete the table:

	Judge 1	Judge 2	Judge 3	Judge 4	Total
Andrew					
Brian	5	4	3		
Carla	4	2		0	
Donna	0	–3	5		

4 marks

End of Practice Paper (Total 105 marks)

PRACTICE PAPER NUMERICAL ANSWERS

1.	(a)	£8.85
	(b)	£7.60
	(c)	8 cups

2.	(a)	11, 8, 5
	(b)	25, 36, 49
	(c)	26, 33, 41

3.	120 cubes

4.	(a)	Isosceles triangle, Scalene triangle, Trapezium

5.	60°.

6.	(a)	1320 cm
	(b)	43 cm
	(c)	2100 m

7.	(a)	17
	(b)	12
	(c)	£4.00
	(d)	2/3
	(e)	3/100
	(f)	2 kg
	(g)	¾

8.	(a)	6.4
	(b)	13136
	(c)	28.7
	(d)	14.1

9.	28

10.	(i)	5
	(ii)	40
	(iii)	50

11.	(a)	1, 5, 25
	(b)	1, 2, 3, 5, 6, 10, 15, 30
	(c)	5
	(d)	2, 3, 5

12.	(a)	30 cm^2
	(b)	(i) 22 cm
		(ii) 2L + 2W

13. (a) 60%
    (b) 40
    (c) 12000

14. ---

15. (a) 23 pieces.
    (b) 10 cm.

16. (a) 4
    (b) 24

17. (a) $x = 5$
    (b) $x = 4$
    (c) $x = 13$
    (d) $x = 12$

18. (a) £3.00
    (b) 3
    (c) The Jones, on average, have more pocket money, and are not as varied as the Archers.

19. Emma pays more by £20.01.

20. 3 adults and 3 children.

21. Apple Coaches will cost £800. Orange Coaches cost £750. Therefore Orange are cheaper.

22. 6 packs of party bags, 9 packs of lolly-pops, 8 packs of toys. Total cost £96 (inc. offer)

23. Acorn Tiles cost £96. Beeching Tiles cost £75. Carpet cost £114. Therefore Beeching is the cheapest.

24. (a) --
    (b) The line is horizontal.

25. Top row (Andrew): 5, 5, 5, 5   Total 20
    2nd row (Brian)   -, -, -, 4   Total 16
    3rd row (Carla)   -, -, 1, -   Total 7
    4th row (Donna)   -, -, -, 5   Total 7