# JAMES ALLEN'S GIRLS' SCHOOL

# MATHEMATICS ENTRANCE EXAMINATION

# 11+ SAMPLE PAPER 1

**CANDIDATE NUMBER:**

……

**Time allowed: 45 minutes**

**Show all your working**

**Write your answers in the spaces provided.**

**Do not spend too long** on any question. If you are finding a question difficult, move on to the next one.

# NO CALCULATORS ALLOWED

1. 275
+ 648
+ 97
_____

2. 1003
– 837
_____

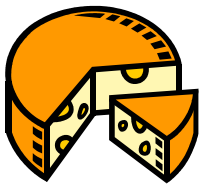
3. 587
x 7
_____

4. $9\overline{)4716}$

5. 2492 ÷ 28

Ans:_____

6. Cheese costs £5.40 per kg. Jessica buys 0.6kg of cheese. How much does Jessica pay?



Ans:_____

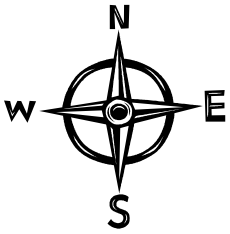
7. There are 31 days in July. Each day throughout July I picked 300g of raspberries from my garden.

What was the total weight of the raspberries I picked that month? Give your answer in kilograms.

Ans:_____

8. A sheet of graph paper is placed with its *x*-axis pointing due East and its *y*-axis pointing due North. A sluggish snail starts at point (0, 0) and slowly, but smoothly, slithers 1 unit North, 2 units East, 3 units South, 4 units West, 5 units North, 6 units East, 7 units South, 8 units West, 9 units North and (lastly!) 10 units East.

At which point does the snail finally arrive?




Ans: (..... , .....)

9. Write down the next term in each of these sequences

(a) 14, 25, 36, 47, _____

(b) 7000, 700, 70, 7, _____

(c) 2, 7, 22, 67, _____

(d) 23, 16, 9, 2 ,_____

10. (a) A tin of cookies costs £3.69 and a bag of jelly babies cost £1.55

Tracey and Cat buy 2 tins of cookies and a bag of jelly babies. They pay with a £20 note. How much change should they get?

£_____

(b) A normal tin contains 40 cookies.

A special offer tin contains $\frac{3}{10}$ more cookies.

Work out how many cookies there are in a special offer tin.

Ans:_____

11. Roger drops his ball onto a hard surface. Each time it bounces, it rebounds to exactly one third of the height from which it fell. After the second bounce the ball rises to a height of 9cm.

From what height was it originally dropped?

Ans:_____

12. Temperatures were taken on one day in each of five cities. The results are shown in the table.

| City | Temperature at midnight | Temperature at midday |
|---|---|---|
| Bristol | 2 C | 8 C |
| Manchester | –2 C | 8 C |
| Liverpool | –4 C | 7 C |
| Norwich | –3 C | –1 C |
| York | –7 C | 2 C |

(a) Which city had the lowest temperature at **midnight**?

Ans:_____

(b) Which city had the greatest rise in temperature between midnight and midday?

Ans:_____

(c) What is the greatest difference in temperature between any two cities at midnight?

Ans:_____

(d) Which of the five cities is being described here?

‘It’s temperature at midday is 6°C higher than the temperature in York and its temperature at midnight is 2°C higher than the temperature in Liverpool’.

Ans:_____

13. Calculate - remember to cancel your answers if possible

(a) $\frac{3}{4} + \frac{5}{6}$

Ans:_____

(b) $\frac{4}{5} - \frac{2}{3}$

Ans:_____

(c) $\frac{1}{7} \times \frac{2}{3} \times 21 =$

Ans:_____

14. A comb for horses has 100 teeth, each 1 mm wide. The gaps between the teeth are also 1 mm wide.

How long is the comb in centimetres?

Ans:_____cm

15.

Here is a list of the ingredients to make 15 Chocolate Brownies.

| | |
|---|---|
| **50g** | **chocolate** |
| **110g** | **butter** |
| **225g** | **sugar** |
| **50g** | **flour** |
| **120g** | **nuts** |

(a) Natasha made 60 Chocolate Brownies.

How much butter did she use?

Ans:_____. g

(b) Stella has 150 grams of flour and 300 grams of nuts, and plenty of the other ingredients. She makes as many Chocolate Brownies as she can.

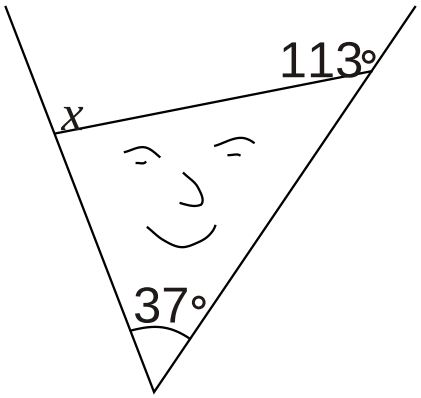
Which ingredient will she run out of, flour or nuts? Show how you decide.

Ans:_____

(c) Pauline wants to make 10 Chocolate Brownies, how much sugar will she need?

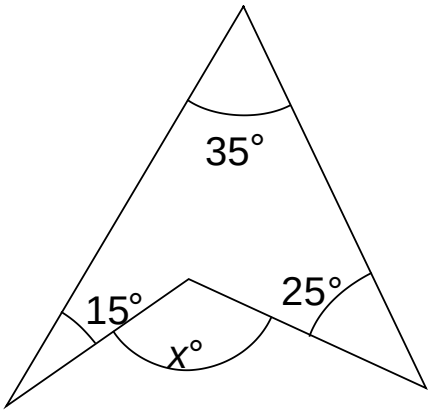
Ans:_____

16. (a) How big is angle *x* in this diagram?




Ans:_____

(b) What is the value of *x* in this diagram?




Ans:_____

17. In a survey, 1000 people were asked if they owned a computer. The pictogram shows the results of the survey.

| | |
|---|---|
| Greece | 🖥 🖥 |
| Hong Kong | 🖥 🖥 🖥 🖥 🖥 🖥 🖥 |
| Italy | 🖥 🖥 🖥 🖥 |
| Korea | 🖥 🖥 🖥 🖥 🖥 |
| Kuwait | 🖥 🖥 🖥 |
| Malaysia | 🖥 🖥 |

🖥 represents 50 people who owned a computer.

(a) In which country did the greatest number of people own a computer?

_____

(b) Write down the number of people in Italy who owned a computer.

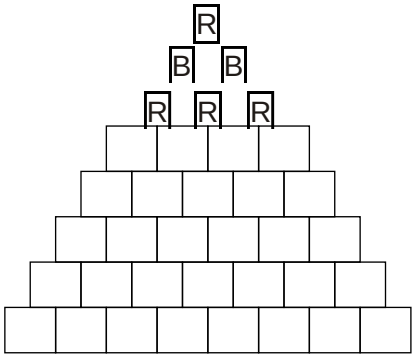
_____

(c) In which country did 240 people own a computer?

_____

18. Natasha is making a coloured tower as shown. She has thirty six small cubes, with equal numbers of red (R), blue (B) and yellow (Y). Each row is of one colour, and no two rows which are next to each other are the same colour. The top three rows are coloured as indicated.

What colour must the bottom row be?




Ans:_____

19. (i) Gill has 5 pink, 7 purple and 8 orange counters in a bag. If she selects a counter without looking, what is the probability she chooses a pink counter?

Ans:_____

(ii) If Gill wants to double her chances of choosing a pink counter, how many extra counters should she add to the bag?

Ans:_____

20. Natalie, Sara and Antonia catch 3 different buses to go to the same destination.
Antonia catches the 19:15 bus.
Natalie's bus journey takes three times as long as Sara's. Natalie's bus leaves 20 minutes before Antonia's bus and arrives at 20:10.
Sara catches the 19:25 bus.
What time does Sara arrive at the destination?

Ans:_____

21. How much smaller is the area of a 60cm by 40cm rectangle than that of a square with the same perimeter?

Ans:_____

22. Jack likes to eat lots of fruit. He finds that four apples and two oranges cost £1.54 and that two oranges and four bananas cost £1.70.

How much would he have to pay if he bought one apple, one orange and one banana?

Ans:_____