



St. Anselm's College

Sample Maths Paper 1

This paper lasts 45 minutes (please see note below regarding new paper)

Calculators are NOT allowed

Please note that we are no longer including Mental Maths as part of the Maths Entrance Exam. The written paper will now be slightly longer and will be 60 minutes, not 45 minutes as with previous exams.

1) 1 AU, or Astronomical Unit, is equal to about 93,000,000 miles which is the distance from the earth to the sun. Write the number 93,000,000 in words.

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2) More accurately, 1 AU is 92,955,807 miles. Write that number in words.

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3)



a. 10 people each parked for 2 hours on Monday. How much money would they have paid altogether?

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b. You have to pay 15p to park for every 8 minutes or part of 8 minutes. How much would I pay to park for 90 minutes?

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4) Look at the New York Subway train timetable below and then answer the questions on the next page.

| | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|
| Brooklyn Bridge | 12:08 | 12:18 | 12:28 | 12:38 | 12:48 | 13:00 | 13:15 |
| Bleecker Street | 12:12 | 12:22 | 12:32 | 12:42 | 12:52 | 13:04 | 13:19 |
| Astor Place | 12:14 | 12:24 | 12:34 | 12:44 | 12:54 | 13:06 | 13:21 |
| Grand Central Terminal | 12:21 | 12:31 | 12:41 | 12:51 | 13:01 | 13:13 | 13:28 |
| 68th Street | 12:25 | 12:35 | 12:45 | 12:55 | 13:05 | 13:17 | 13:32 |
| 125th Street | 12:35 | 12:45 | 12:55 | 13:05 | 13:15 | 13:27 | 13:42 |
| 3rd Ave & 138th Street | 12:38 | 12:48 | 12:58 | 13:08 | 13:18 | 13:30 | 13:45 |
| Hunts Point Avenue | 12:47 | 12:57 | 13:07 | 13:17 | 13:27 | 13:39 | 13:54 |
| Parkchester | 12:53 | 13:03 | 13:13 | 13:23 | 13:33 | 13:45 | 14:00 |
| Pelham Bay Park | 13:02 | 13:12 | 13:22 | 13:32 | 13:42 | 13:54 | 14:09 |

a. I need to catch a train from Bleecker Street to ensure I arrive at Hunts Point Avenue **before** 13:45. What time does the latest train I could catch leave Bleecker Street?

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b. How many minutes does the train's journey from Astor Place to Parkchester take?

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c. Write 13:30 using am or pm time.

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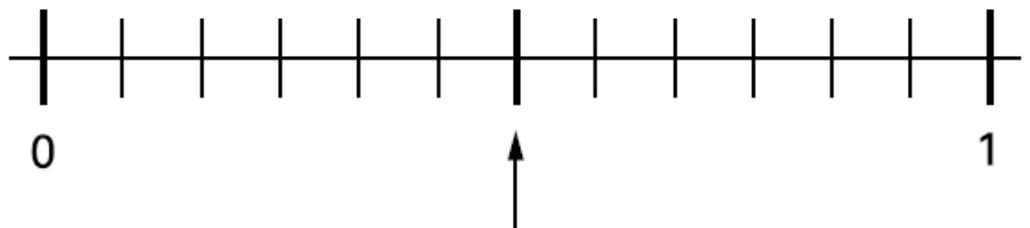
5) Look at these fractions:

$$\frac{1}{2}$$

$$\frac{1}{3}$$

$$\frac{5}{6}$$

a. Underneath the arrow below, write which of the fractions it shows on the number line. Show the other fractions in the same way.



b. Fill in the missing numbers in the boxes:

$$\frac{2}{12} = \frac{\boxed{}}{6}$$

$$\frac{1}{2} = \frac{12}{\boxed{}}$$

$$\frac{1}{\boxed{}} = \frac{6}{24}$$

6) I live 0.3 miles from Goodison Park football stadium.
There are 1760 yards in a mile.

a. How many yards away from Goodison Park do I live?

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b. I live 2,640 yards from Anfield football stadium. How many miles from Anfield football stadium do I live?

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c. A kilometre is five eighths of a mile. How many kilometres away from Anfield do I live?

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7) Solve the following:

a. I think of a number, multiply it by 7 and then subtract 50. The result is -1. What was the number I first thought of?

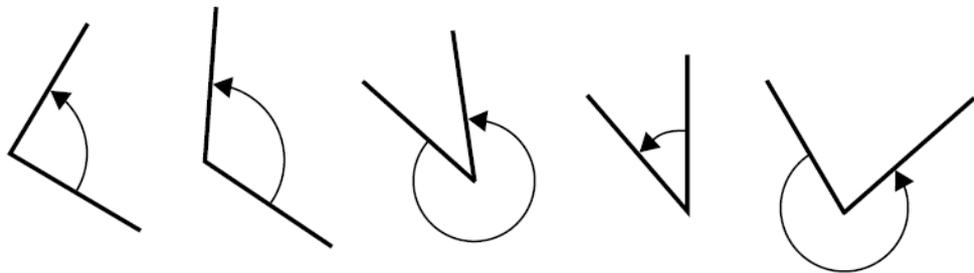
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b. What number must m be to make this mathematical statement true?

$$7 \times m + 15 = 11 \times m + 7$$

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8) Look at these angles:



angle P

angle Q

angle R

angle S

angle T

One of the angles measures about 270°

Circle which angle it must be **and** write the name of this type of angle below.

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9) Write the next two numbers for each of the following sequences.

a. 1 9 17 25 33

b. 1 3 9 27 81

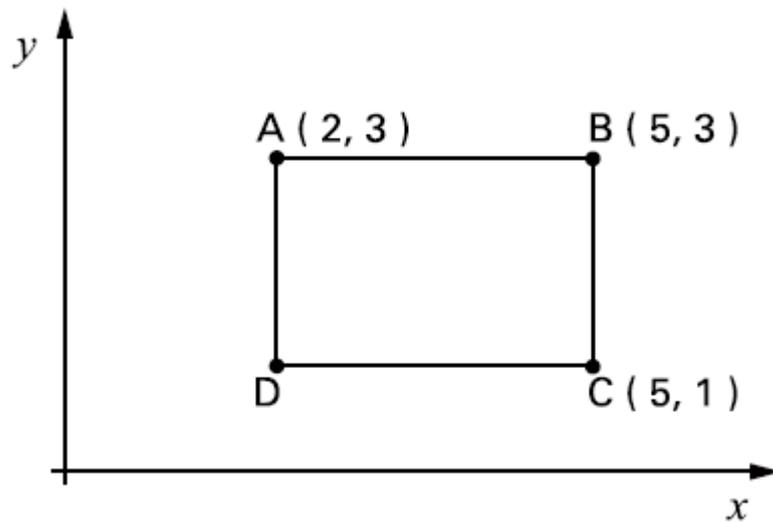
c. 1 1.6 2.2 2.8 3.4

d. 1 -2 4 -8 16

e. To make the sequence in part (d) you multiply by the same number each time. What is the number?

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10) Look at the diagram below:



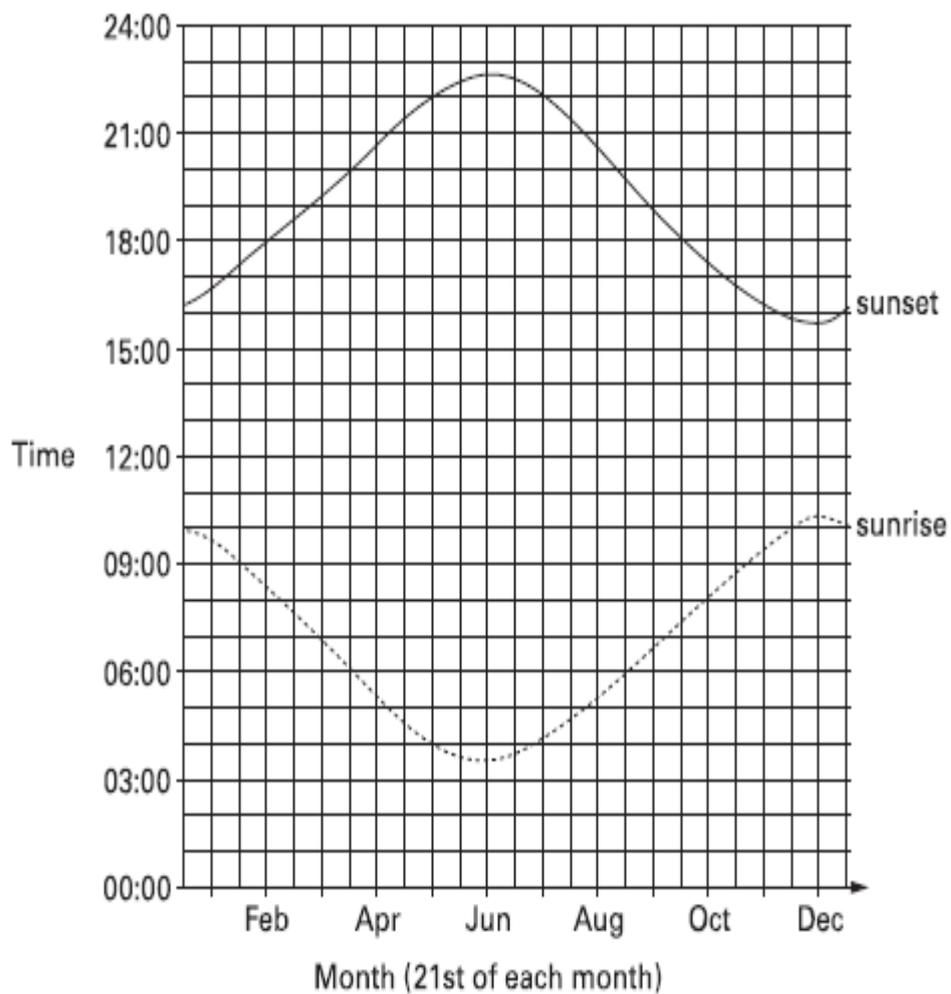
a. I want to add a point K that is halfway between the points B and C. What are the coordinates of K?

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b. The shape ABCD is a rectangle. What are the coordinates of point D?

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11) The graph below shows what time the sun rises and sets in the American town of Anchorage.



The day with the most hours of daylight is called the longest day.

a) In which month is the longest day?

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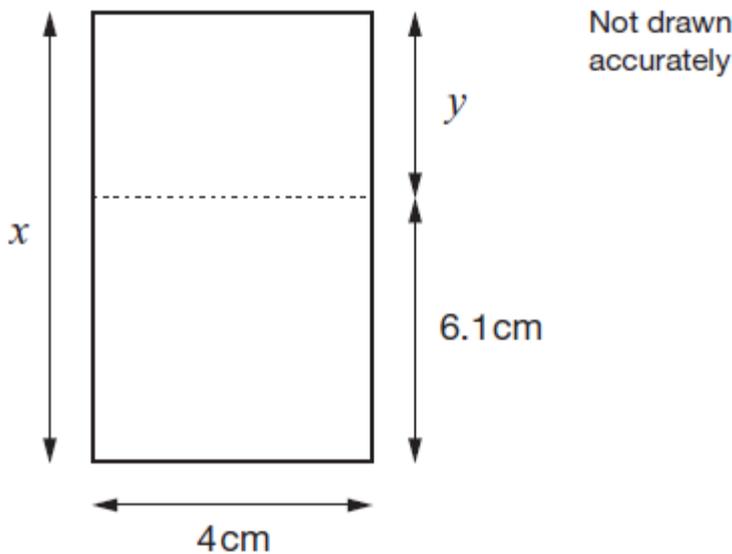
b) Estimate how many hours of daylight there are on that day.

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c) Estimate how many hours of daylight there are on the shortest day?

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12) Look at the rectangle below. The **total** area of the rectangle is 40 cm^2 . Work out the lengths x and y .



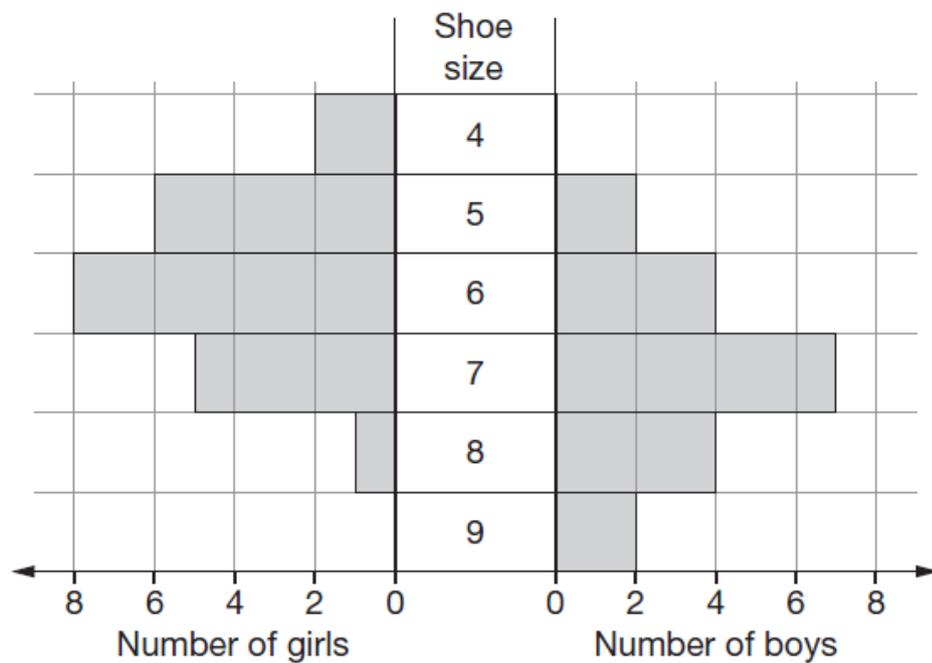
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13) Some pupils were asked the question, "To the nearest whole number, what is your shoe size?"

The chart below shows the results.



a) How many pupils are size 6?

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b) How many more girls than boys were asked?

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c) Who had the bigger range of show sizes? Tick the correct box.

Girls

Boys

Both the same

Explain your answer.

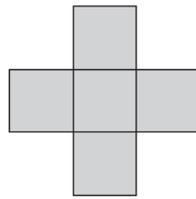
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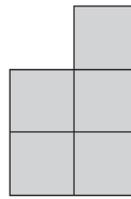
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14) Shape A and Shape B shown below are each made of 5 identical squares.



A



B

Not drawn accurately

The perimeter of Shape A is 72cm. What is the perimeter of Shape B?

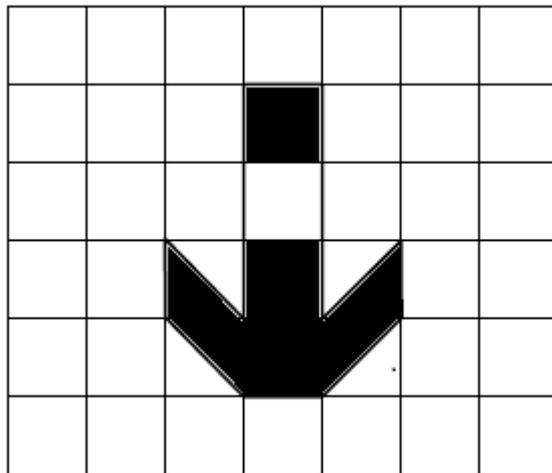
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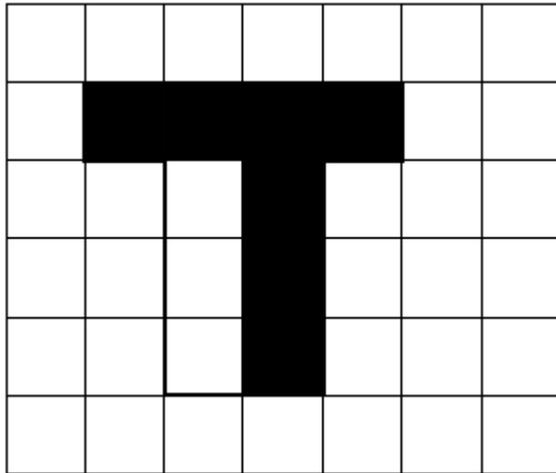
15)

a) What **fraction** of the shape below is shaded? Give your answer as simply as possible.



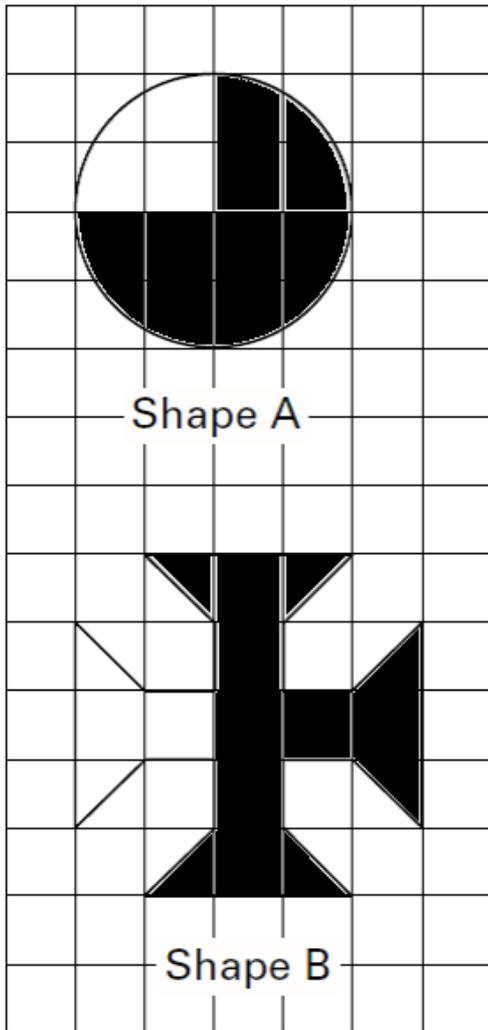
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b) What **percentage** of the shape below is shaded?



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c) Which of the two shapes below has a greater percentage shaded? Explain how you know.



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16) Round each of the following measurements to the accuracy given in brackets.

a) 6.51 cm (nearest cm)

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b) 127491 km (nearest one thousand km)

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c) 5.063 cm (nearest mm)

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17) Write the following numbers in order of size, starting with the smallest.

0.4 $\frac{3}{10}$ 0.35 $\frac{37}{100}$ 0.306

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18) Look at this multiplication. It shows how you can write 1638:

$$1 \times 2 \times 3 \times 3 \times 7 \times 13 = 1638$$

a) Write 126 in the same way by filling in the gaps below.

$$1 \times 2 \times 3 \times \dots \times \dots = 126$$

b) Write down the answer to $1638 \div 126$

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19) I have a bag containing red, blue and white counters. A counter is chosen at random from the bag. There are 48

red counters in the bag and the probability of choosing a red counter is $\frac{2}{3}$. The bag contains 15 blue counters. How many white counters are there in the bag?

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20) On a farm 60 cattle gave birth. 45% of the cattle gave birth to two foals. The rest of the cattle gave birth to one foal. In total, how many foals were born?

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21) Look at the list of numbers below.

5 13 25 30 49 80 121

a) Which two of the numbers have an **odd** number of factors?

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b) Give another example of a number with an odd number of factors.

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c) These numbers have a special name. What is it?

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d) Which two of the numbers are prime numbers?

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e) Using each of the **first four** numbers in the list once (5, 13, 25, 30) and any of the four operations (+ - ÷ ×) show how you can make 14.

(You must use **all** the four numbers and use each number **only once**. You can use any of the + - × ÷ as many times as you like and you do not need to use all of them).

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22) In September 2018 Mary's age was four times Anna's age and Rebecca was two years older than Mary.

The difference between Rebecca's age and Anna's age is 14 years.

How old were the three girls in September 2018?

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