

FIRST NAME ..... SURNAME .....

SCHOOL ..... DATE .....



SMOOTH**MATHS**

11 PLUS EXAMINATION

**MATHEMATICS**

SAMPLE PAPER 1

Paper ID: SM-11MATH-A10

**Please read the following before you begin**

- Please attempt all questions.
- Keep all your work neatly within the answer spaces provided.
- Show all your working out clearly on the paper.
- Calculators are not allowed.

TOTAL MARKS: 100

TIME ALLOWED: 1 Hour

STUDENT SCORE: ...../100



Sample paper produced independently by SmoothMaths, inspired by the question style and structure often seen in leading independent school and 11+ entrance exams.  
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**WORK OUT THE FOLLOWING**  
**(SHOW YOUR WORKING)**

1.  $782 + 936 - 472$

**Answer:**

2.  $98451 - 7 \times 645 + 340$

**Answer:**

3.  $2468 \times 132$

**Answer:**

4.  $657.89 \div 14$

**Answer:**

5. 35% of 864

**Answer:**

6. Arrange the following numbers in order of size, starting with the smallest:

$$\frac{7}{9}, \frac{2}{3}, \frac{5}{8}, \frac{4}{5}$$

Convert fractions to decimals:

**Answer:**

7. John has a 3.2 kg bag of flour and uses 1.75 kg for a recipe. How much flour is left in grams?

**Answer:**

8.a) Tom eats  $\frac{7}{8}$  of a cake. How much of the cake is left after he eats?

**Answer:**

**b)** Tom gives  $\frac{2}{5}$  of the cake he eats to his friend. What fraction of the original cake remains after Tom shares with his friend?

**Answer:**

**9.** Look at the number pattern below:

$$1^2 + 4 = 5$$

$$2^2 + 6 = 10$$

$$3^2 + 8 = 17$$

**a)** Fill in the next two lines of the pattern:

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

**b)** Complete the following line which comes later in the pattern:

$$\underline{\quad} + \underline{\quad} = 130$$

**10.** Arrange these events from least probable to most probable:

- A. Drawing a red ace from a standard deck of cards
- B. Winning a lottery with 1 in 10 million odds
- C. Rolling a sum of 7 with two six-sided dice

**Answer:**

**11. a)** Sarah takes 45 minutes to walk to her friend's house. She leaves at 10:30 a.m. At what time does she arrive?

**Answer:**

**b)** If Sarah stays at her friend's house for 1 hour and 20 minutes, at what time does she leave to go back home?

**Answer:**

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12. Fabric costs £8.75 per meter.

a) How much will 15 meters cost?

**Answer:**

b) If you have a budget of £100, how many meters of fabric can you buy?

**Answer:**

13. Convert 350 km to miles (1 mile  $\approx$  1.609 km).  
Give your answer to the nearest whole number.

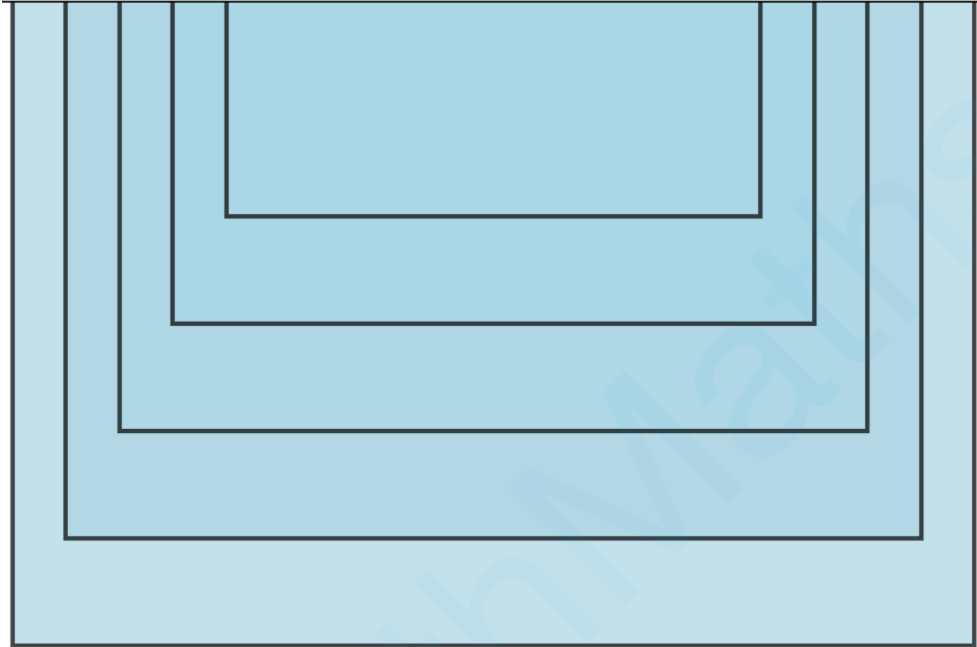
**Answer:**

14. In a recipe, sugar and flour are mixed in the ratio 1:3.  
If there are 600g of the mixture, how much flour is used?

**Answer:**

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15. A pyramid has a square base and consists of 5 layers. The base layer has a side length of 9 meters. Each successive layer has a side length that is 1 meter less than the layer below it.



- a) What is the area of the base layer?

**Answer:**

- b) Calculate the total area of all the layers combined.

**Answer:**

**16.** Three trains depart from a station every 4, 6, and 9 minutes.

At what time will they all depart together if the first departure is at 12:00 p.m.?

**Answer:**

**17.** Consider a regular hexagon with a perimeter of 60 cm.

**a)** What is the length of each side of the hexagon?

**Answer:**

**b)** Calculate the area of the hexagon.

**Answer:**

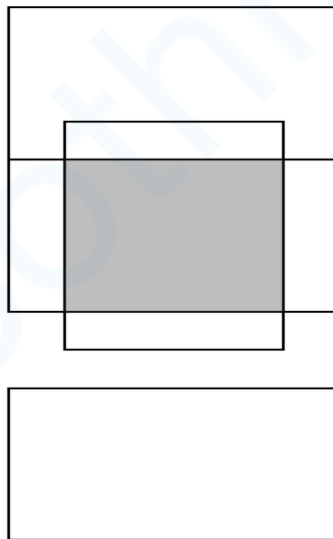
**c)** If a smaller triangle is inscribed within the hexagon and each side of the triangle measures 5 cm, what is the area of the inscribed triangle?

**Answer:**

d) How many triangles of side length 5 cm can be inscribed within the hexagon without overlapping?

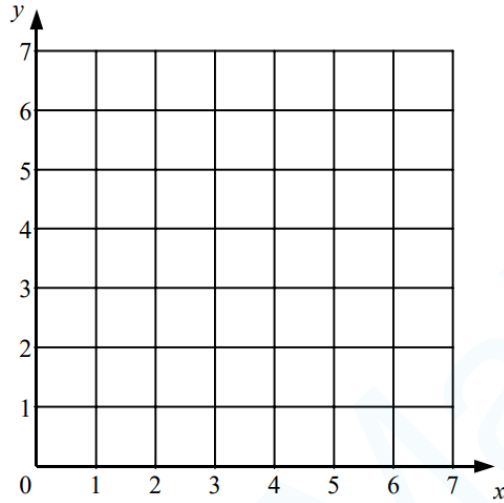
**Answer:**

18. Four identical rectangles of length 21 cm and width 14 cm are arranged in the shape of a cross. Find the area of the shaded region in the center.



**Answer:**

19. Plot and label the points  $(1, 2)$ ,  $(4, 5)$ ,  $(7, 3)$ ,  $(2, -1)$  on a coordinate grid. What shape do they form when connected in order?



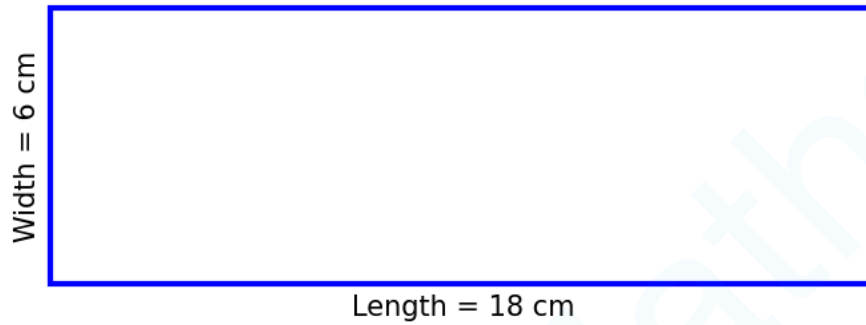
These points form an irregular quadrilateral

**Answer:**

20. My age is a multiple of 9. In 4 years, it will be a multiple of 7. I am more than 30 years old but less than 70. How old am I?

**Answer:**

21. A piece of wire 48 cm long is bent into a rectangle such that its length is thrice its width. Find the area of the rectangle.



**Answer:**

22. Five students ran different distances during a school competition. The longest distance was 9.6 km and the shortest was 6.4 km.

Find the mean distance run by the students if the other three ran 8.2 km, 7.8 km, and 7.5 km.

**Answer:**

23. Two numbers are 'mirrored' by reversing their digits before adding them. If 37 and 82 are mirrored, what is the result of the sum?

**Answer:**

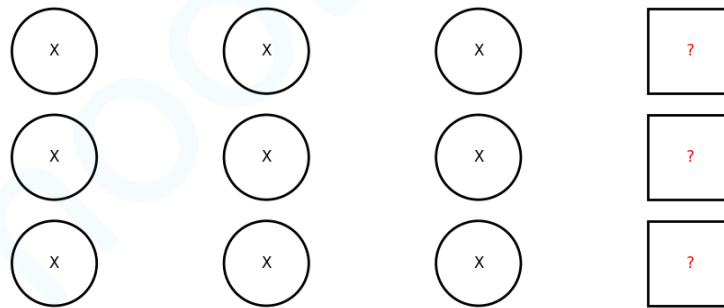
24. Fill in the circles with integers such that the sum of the numbers in each row equals

the number in the square at the end of that row.

Square 1 = 10

Square 2 = 15

Square 3 = 20



**End of Examination**