Name _____

Teacher _____

1st Year Mathematics

March assessment

You may **not** use a calculator for this assessment.

You must show all your working out.

Section A – mastery **[37]**

1. Work out the following, giving answers in simplified form.

(a) $\frac{3}{7}$ of 63

.....

.....

Answer .....

(2)

(b) $\frac{2}{5} \times \frac{5}{8}$

.....

.....

Answer .....

(2)

(c) $\frac{5}{6} - \frac{1}{4}$

.....

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Answer .....

(2)

(Total 6 marks)

2. a) Convert $\frac{19}{3}$ to a mixed number

Answer …… **(1)**

b) Convert $3\frac{7}{8}$ to an improper fraction.

Answer …… **(1)**

(Total 2 marks)

3. Solve the following equations, showing all your working out:

(a) $9t - 5 = 22$

.....

.....

Answer t = = ...

(2)

(b) $5p - 12 = 11p + 3$

.....

.....

.....

Answer p = ...

(3)

(Total 5 marks)

4. Fill in the missing numbers:

(a) $7 - \square = 9$

(b) $-27 \div \square = 3$

(Total 2 marks)

5. If $a = 4, b = -3$ and $c = 2$ calculate:

i) $5b + c$

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.....

ii) $6(a - b)$

.....

.....

(Total 4 marks)

6. Simplify the expressions below as far as possible:

a) 10m – m ……

b) $5a + 7b + 10 - 4a - 9b - 13$

……

(Total 4 marks)

7. (a) Write down the next two terms in this sequence:

50, 48, 44, 38, 30, ☐, ☐

(2)

(b) The *n*th term rule for a sequence is $5n - 3$

(i) Write down the first three terms of the sequence.

.....

Answer ....., ..., ...

(2)

(ii) Is 121 a term in this sequence? Explain your answer.

.....

.....

(1)

(Total 5 marks)

8. A sequence of numbers is shown.

7 10 13 16 19

a) Find an expression for the *nth* term rule for the sequence.

.....

Answer .....

(2)

b) Find the hundredth term in the sequence given in part a).

.....

Answer .....

(1)

(Total 3 marks)

9. A type of wood has a density of 0.8 grams/cm³. A piece of this wood is 3cm by 10cm by 15cm. What is the mass of this piece of wood in

a) grams? ……

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……

Answer ..... grams

(3)

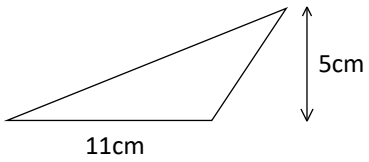
b) kg? ……

Answer ..... kilograms

(1)

(Total 4 marks)

10. Calculate the area of the triangle below.



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Answer ..... cm²

(2)

(Total 2 marks)

Section B – Problem Solving **[33]**

11. a) Lucy makes some curtains for her living room and her bedroom.

In the living room she uses $3\frac{2}{3}$ metres of material.

In the bedroom she uses $2\frac{4}{5}$ metres of material.

How many metres of material does she use altogether?

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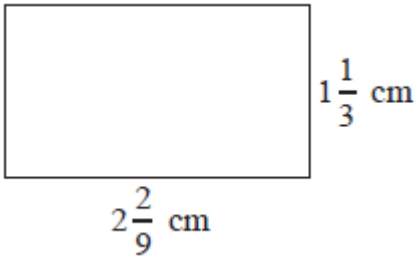
Answer ..... m **(3)**

b) Calculate the area of the rectangle below:



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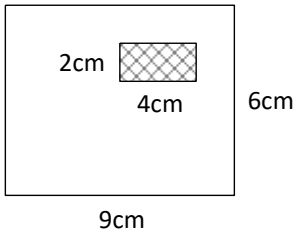
(4 marks)
(Total 7 marks)

12. Work out what fraction of the shape below is shaded, giving your answer in simplified form.



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Answer .....

(Total 3 marks)

13. A box has dimensions 10cm by 8cm by 6cm. Dice of side 2cm are to be packed into this box. What is the largest number of dice the box will hold?

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Answer .....dice

(Total 3 marks)

14. The area of a triangle is $1\frac{3}{5}$ cm². Its perpendicular height is $1\frac{1}{7}$ cm. What is the length of its base? Give your answer as a simplified fraction.

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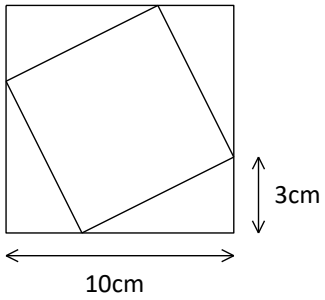
Answer ..... cm

(Total 4 marks)

15. Find the area of the inner square. It is surrounded by 4 identical triangles.



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Answer .....cm^2

(Total 4 marks)

16. The angles (in degrees) of a triangle are x, $2x-19$ and $4x+10$.

a) Write an equation for this.

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b) Solve your equation to find x, showing your working out. Then use your solution to find the size of each angle.

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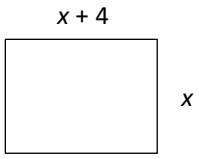
Answer……., ……., ……. degrees

(Total 4 marks)

17. The width of a rectangle is x centimetres. The length of the rectangle is $(x + 4)$ centimetres.



a) Find an expression, in terms of x, for the perimeter of the rectangle. Give your expression in its simplest form.

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(1)

b) The perimeter of the rectangle is 54 centimetres. Work out the longer side of the rectangle.

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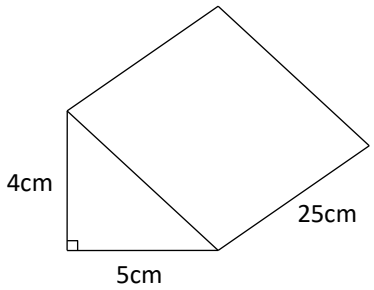
Answer.....cm **(3)**

(Total 4 marks)

18. A block of metal in the shape of a triangular prism (as shown below) is melted down and then the metal is made into two identical cubes. What is the length of one side of each cube?

NOT TO SCALE



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Answer.....cm **(Total 4 marks)**

END OF THE TEST