SECTION I (50 Marks)

Answer all questions in this section.

1. Without using a calculator, evaluate and leave your answer as a simplified fraction: (3 marks)

$$\frac{2\frac{1}{2}+\frac{1}{5}+\frac{5}{6}of2}{1\frac{7}{10}}$$

2. A farmer distributed his bags of cabbages as follows: A hospital received ¼ of the total. A school received half of the remainder. A green grocer received ⅓ of what the school received. The remaining bags were six more than what the green grocer received. Calculate the total number of bags the farmer initially had. (3 marks)

3. Simplify the algebraic expression:
   5a - 4b - 2[a - (2b + c)] (2 marks)

4. Evaluate: $\dfrac{-12+(-3)k+(-20)}{-6666+34(-6)}$ (3 marks)

8. Three bells ring at intervals of 9, 15, and 21 minutes. They ring together at 11:00 p.m. Find the next time they will ring together. (3 marks)
   Working:

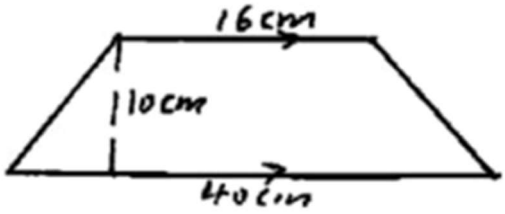
13. A number n leaves a remainder of 3 when divided by 27, 30, or 45. Find the smallest possible value of n. (3 marks)
Working:

14. (a) List all prime numbers between 30 and 40 to form a number. (1 mark)
   Working:

(b) List all square numbers between 40 and 70, form a number. Find the difference between the numbers in (a) and (b), rounded to the nearest tens. (2 marks)

16.Arrange the fractions ½, ¼, and ⅛ in ascending order. (3 marks)

18**. a)** Find the area of the following figure. (2 marks)

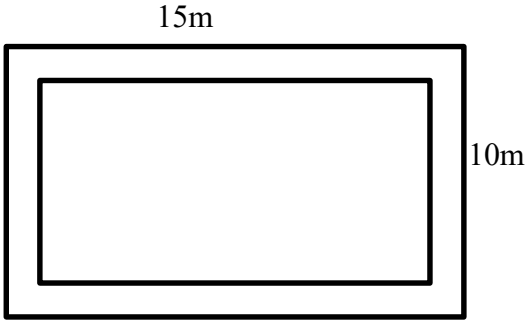


b) A piece of wire is in the shape of an arc of a circle, radius 10.5 cm10.5cm. The angle at the centre is 150∘

i) Calculate the length of the wire. (2 marks)

ii) If the wire is bent to form a complete circle, find its radius. (3 marks)

c) A flower garden measuring 10 m10m by 15 m15m is surrounded by a path 2 m2m wide. Find the area of the path. (3 marks)



21(a) Express 0.185 as a simplified fraction. (2 marks)
Working:

(b) Evaluate: $\frac{3^2+2^3}{4^3-2^3}$ (3 marks)

b).Carol borrowed Ksh150,000. She repaid: Ksh 25,000 in month 1, Ksh 15,000 in month 2, and Ksh 34,000 in month 3. The rest was paid in 2 equal installments.
(i) Total repaid in first 3 months (2 marks)
Working:

(ii) Amount paid in each of the last two months (3 marks)
Working: