NAME: **S.1 MATHEMATICS EXERCISE THREE** **23/08/2015**

INSTRUCTIONS:

Attempt **all** questions

SECTION A (40 MARKS)

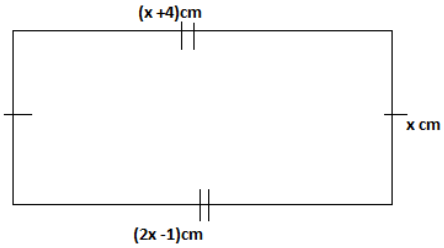
1. Evaluate: $\dfrac{\frac{3}{4}-\frac{2}{5} of \frac{5}{6}}{\frac{1}{2}}$
2. Find the LCM and GCD of 12, 18 and 36.
3. Davinah ate half of an orange at break time and three-quarters of the remainder at lunch time. Calculate the fraction Davinah ate altogether.
4. Express 1225 as a product of its prime factors. Hence find the values m and n if $1225 = m^2 \times 7^n$.
5. Chemonges completes one lap in $\frac{2}{3}$ of a minute. If she runs at the same rate, how long will she take to complete $2\frac{1}{2}$ laps?
6. Work out:
   (a) $-3 \times 23 + (-5) \times (-1) - 8 \times (-4)$
   (b) $\{(5-8\times^{-}3+4)\times 2-10\}\times 14\times 37+5$
7. Arrange in ascending order; $\frac{13}{7}, \frac{5}{3}, \frac{16}{9}, 2\frac{2}{3}, 1\frac{2}{2}$
8. Convert 11001_{three} to base eight
9. Express the recurring decimal 0.383838…. as a fraction.
10. Simplify: $x+2a-\dfrac{3x-1}{4}-\dfrac{2a}{5}$

SECTION B

11. In a class of 30 pupils, 19 play tennis and 16 play football. All the pupils play one of these games. Draw a Venn diagram to represent the information.
    (a) find the number of pupils who like both games.
    (b) find the number of pupils who like football only.
    (c) find the number of pupils who like tennis only.
    (d) find the total number of pupils who like only one game.

12. In a ranch $\frac{1}{4}$ of the animals are goats and sheep and $\frac{4}{5}$ of these are sheep. Two-fifths of the remaining animals are cows and the rest are bulls. What fraction of the animals are:
    (a) Goats, (b) sheep, (c) cows, (d) bulls?
13. Evaluate
    (a) $1\frac{2}{9} + \left(\frac{5}{6} - \frac{1}{4} \div 4\frac{1}{2}\right)$
    (b) $1\frac{3}{13} - \frac{7}{8} \times \frac{6}{7} + \frac{1}{2}$
    (c) $\dfrac{2\frac{1}{2} \times 1\frac{3}{4} - 5\frac{1}{4}}{1\frac{2}{5} + 2\left(1\frac{1}{4} - 2\frac{3}{4}\right)}$

14. The figure below shows a rectangle of sides as indicated.



(a) (i) Find the value of x.

(ii) Find the area of the rectangle in cm^2.

(i) Find its perimeter in centimeters.

(b) Given that A = {all prime numbers between 0 and 20}

B= {all even numbers between 1 and 21}

(i) Draw a Venn diagram to show the two sets.
(ii) list the members of A^1,B^1 and $(A \cap B)^1$
(iii)Write down n $(A)^1$ and n $(A \cap B)^1$.

END