

FORM TWO HOME ASSIGNMENT – DECEMBER 2018

BASIC MATHEMATICS

SECTION A.

- Write the number 0.002758 correct to;
 - 2 significant figures.
 - 2 decimal places.
- (a) If the expression $3x^2 + qx + 3$ is a perfect square, find the value of Q.
(b) Find x from the following equation; $3 - x \log 2 = \log 250$.
- (a) The ratio of the areas of two similar triangles is 1:4, find the ratio of the corresponding sides.
(b) If the sun cast a shadow 12m from a tower 50m high, find the angle of elevation of the sun.
- (a) Find the x - intercept of a line whose slope is - 2 and passing through point (3, -1).
(b) Find the equation of a line through points (-5, 2) and (5, -2).
- Describe the transformation which moves point (7,1) to (-1,7) on the xy plane.
- (a) Factorize $a^2 - b^2$, and this result to evaluate: $(85.18)^2 - (14.82)^2$.
- Solve for x and y from; $x^2 + y^2 = x - 2y = 5$.
- A father is now 28 years older than his daughter. If the ratio of their ages 5 years ago was 1:5, find their present ages.
- Find the dimensions of a rectangle whose perimeter is 34cm and area is 60cm².
- (a) without using table simplify; $\frac{(\cos^2 45^\circ - \sin^2 45^\circ)}{\cos 30^\circ + \sin 60^\circ}$
(b) Find the value of from; $\left(\frac{1}{2}\right)^n \times \left(\frac{1}{4}\right)^{2n} = 16$.
- Given; $\frac{x}{y} = \sqrt{2}$, find the value of $\frac{x^2 - y^2}{x^2 + y^2}$.
- Factorize completely the following expressions;
 - $4x^2(a + b) - 9y^2(a + b)$.
 - $6x^2 + x - 1$.
- If Tsh 168,000 is divided in the ratio 3:4:7, find the difference between the smallest and the largest share.

14. (a) Simplify completely the expression; $\sqrt{24}(\sqrt{3} + \sqrt{6}) - \sqrt{8}\sqrt{18}$.

(b) Without using tables, find: $(9792)^2 - 9292 \times 9792$.

15. If $p * q$ is defined as $3p - q$ for any integers p and q , find:

(a) $(5 * 3) * 2$.

(b) $-3 * 2$.

16. Make Q the subject of the following formula;

$$T = \frac{Q + R}{2Q - S}$$

17. Express 0.25^* as a ratio of two integers.

18. Factorize completely;

(a) $2x^2 - xy - y^2$.

(b) $4 - (a - 1)^2$

19. Find the degree measures of each interior angle of a right angled triangle whose sides are 5cm, 12cm 13cm.

20. If $\tan A = 2.4$, and A is an acute angle, find $\sin A$ and $\cos A$.

SECTION B.

21. (a) Factorize $4a^2 - b^2$. use your result to solve the equation; $4a^2 - b^2 = 2b - 4a = -12$.

(b) Without using table evaluate; $(6.513)^2 - (3.487)^2$.

22. In a village of 5000 villagers, 3300 keeps cows, 1500 keeps goats and 700 don't keep any of these animals. Find the number of villagers who keep both types of animals.

23. (a) Given $\log 2 = 0.3010$, find without using tables;

(i) $\text{Log } 25$.

(ii) $\text{Log } 40$.

(b) Use tables to find the value of: $\sqrt{\frac{(10.75)^2 \times 598}{0.0581}}$

24. (a) Solve the following simultaneous equations graphically; $\begin{cases} 2x + y = 5 \\ x - y = 4 \end{cases}$

(c) Find the height of a building, if the angle of elevation of its top from a point 70m away is 25° .

25. The following table shows distribution scores of 40 pupils in a geography test;

Score	35 - 44	45 - 54	55 - 64	65 - 74	75 - 84
No. of Pupils	4	10	12	8	6

(a) Construct the cumulative frequency table.

(b) Construct the histogram and the cumulative curve for these scores.