BOT TERM II EXAMS

S.3 MATHEMATICS

TIME: 1 HOUR

INSTRUCTIONS

- *Attempt all the questions.*
- *Show all the necessary calculations.*

1. Given that $a*b$ means $a+b^2$, find;
   (a) $2*3$ (b) $2*(1*-2)$

2. Simplify $\dfrac{(16)^{3/4}\times(64)^{1/3}\times\left(\dfrac{1}{32}\right)^{2/5}}{(128)^{1/7}}$.

3. Express $\dfrac{2}{3\sqrt{2}-\sqrt{3}}$ in form of $a\sqrt{2}+b\sqrt{3}$.

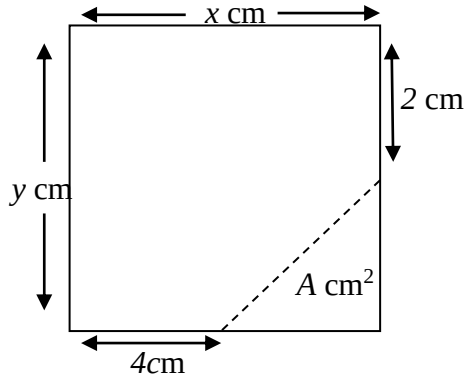
4. Solve the inequality $\dfrac{3}{2}-\dfrac{5x}{3}>8+\dfrac{x}{2}$.

5. Given that $g(x)=ax^2+bx+5$. If $g(2)=21$ and $g(-3)=26$, values of a and b.

6. Find the equation of a straight line passing through point $(3,-1)$ and is perpendicular to the line $2y+3x=8$.

7. Solve quadratic equation $x^2=2-x$.

8. It is given that $\mathbf{x}=\begin{pmatrix}-2\\3\end{pmatrix}$ and $\mathbf{y}=\begin{pmatrix}6\\-1\end{pmatrix}$. Find ;
   (i) The column vector of $x-y$
   (ii) The value of $|x|+|y|$

9. 

The diagram shows a rectangle *x*cm By *y*cm. The triangular area is Acm^2.

(i) Obtain an equation for A in Terms of *x* and *y*.

(ii) Make y the subject in the equation above.

10. A ladder 12m long which is inclined at an angle of 54^0 to the ground just reaches to the top of a building. Calculate the height of the building.