BA SANGAM COLLEGE
YEAR 11
MATHEMATICS
WORKSHEET 5

1. The inverse of matrix $\begin{bmatrix} 6 & 3 \\ 5 & 3 \end{bmatrix}$ is

   A. $\frac{1}{3}\begin{bmatrix} 3 & -3 \\ -5 & 6 \end{bmatrix}$

   B. $\frac{1}{2}\begin{bmatrix} 6 & 3 \\ 5 & 3 \end{bmatrix}$

   B. C. $\frac{1}{3}\begin{bmatrix} 3 & 3 \\ 5 & 6 \end{bmatrix}$

   D. $\frac{1}{3}\begin{bmatrix} -3 & -6 \\ -5 & 3 \end{bmatrix}$

2. A = {2, 4} and B = {a, b, c}. which of the following sets correctly represents B x A

   A. {(2, a), (4, b), (2, c)}

   B. {(a, 2), (a, 4), (b, 2), (b, 4), (c, 2), (c, 4)}

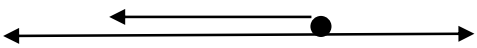
   C. { (2, a), (2, b), (2, c), (4, a), (4, b), (4, c)}

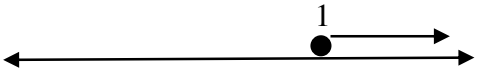
   D. {(c, 2), (c, 4), (b, 2), (b, 4), (4, a)}

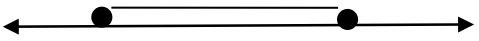
3. For a binary operation * on the set S, if a * (b * c) = (a * b) * c is true for all values of a, b and c on S, then the operation * is said to be

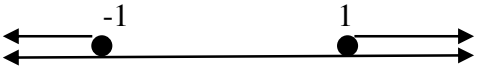
   A. Closed B. A group C. associative D. commutative

4. The solution set for $12 - 4x \leq 8$, $x \in R$ is best represented by

   A. 

   B. 

   C. 

   D. 

5. The formula $V = \frac{1}{3}\pi r^2 h$ written with 'r' as the subject is

   A. $\frac{V\pi h}{3}$

   C. $\sqrt{\frac{3V}{\pi h}}$

   B. $3V^2\pi h$

   D. $\frac{V^2\pi h}{3}$

6. $2 \times 3^2 + (4 - 3)$ is equal to

   A. 9 B. 11 C. 19 D. 26

7. 0.6 converted to a fraction is:

   A. $\frac{6}{10}$ B. $\frac{6}{100}$ C. $\frac{1}{6}$ D. $\frac{6}{9}$

8. Simplify $\frac{2x-6}{2x^2-4x-6}$

9. Make 'c' the subject of the formula in $E = mc^2$

10. Given a unit square with coordinates P=(0, 1), Q=(1, 1); R=(1,0); S=(0,0). Find the image of PQRS upon a transformation by the matrix.

$$\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$$

11. Find w, x, y and z so that

$$\begin{pmatrix} x+y & 2 \\ w & 0 \end{pmatrix} = \begin{pmatrix} 6 & x-y \\ 4 & z \end{pmatrix}$$

12. Rearrange the equation $s = ut + \frac{1}{2}at^2$ to make 'a' subject of the formula.

13. Simplify $\frac{2x}{5} - \frac{x}{4} \div \frac{x^2}{8}$

14. Factorize $3q^2 - 48$

15. Solve the equation $\frac{4x-12}{3} = \frac{x-5}{2}$

16. Make 'p' the subject of the formula in $2q = \sqrt{3p-2} + 5$