

**EASTERN UNIVERSITY, SRI LANKA**  
**FIRST YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE – 2005/2006 and**  
**2006/2007 (July/Aug 2015)**  
**AEN 1103 – BASIC MATHEMATICS (1:15/00)**

**External Degree**

**Repeat**

**Answer all questions**

**Time: One hour**

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1. (a) i. Find the equation of a straight line passes through the point  $(-1, 2)$  with slope 3.

ii. Let  $A = \begin{pmatrix} 8 & 2 & 6 \\ -2 & 4 & 0 \end{pmatrix}$  and  $B = \begin{pmatrix} 8 & -1 & 4 \\ 1 & 4 & -2 \end{pmatrix}$ .

Find the matrix  $2A - 2B$ .

- (b) Evaluate the following limits:

i. limit  $\lim_{x \rightarrow \infty} \frac{3x + 5}{x - 8}$  ;

ii. limit  $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x^2 - x - 6}$

2. (a) Differentiate the following functions with respect to  $x$ :

i.  $y = x^3(3x^3 + 4)$ ;

ii.  $y = (3x^2 - 2x + 1)/(3 - 4x^2)$ .

**(PTO)**

(b) Integrate the following with respect to  $x$ :

i.  $(4x + 3)(2x - 1)$ ;

ii.  $x^5/(x^6 + 2)$ .

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