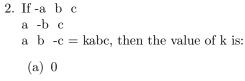
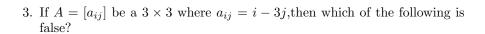
1. If the sum of all the elements of 3×3 scalar matrix is 9, then the product of all elements is:
(a) 0
(b) 9
(c) 27
(d) 729







(a)
$$a_{11} < 0$$

(b) $a_{12} + a_{21} = -6$
(c) $a_{13} > a_{31}$
(d) $a_{31} = 0$

4. If $F(x) = \cos x - \sin x 0 \sin x \cos x 0000$ and $[F(x)]^2 = F(kx)$, then the value of k is:

(b) 2 (c) 0 (d) -2

(a) 1

5. Assertion (A): For any symmetric matrix $A,\ B'AB$ is a skew-symmetric matrix.

Reason (R): A square matrix P is kew-symmetric if P' = -P

- (a) Both Assertion and Reason are true, and Reason is the correct explaination of Assertion.
- (b) Both Assertion and Reason are true, but Reason is not the correct explaination of Assertion.
- (c) Assertion is true, but Reason is false.
- (d) Assertion is false, but Reason is true.

- 6. Solve the following system of equations, using matrices: $\frac{2}{x}+\frac{3}{y}+\frac{10}{z}=4,\,\frac{4}{x}-\frac{6}{y}+\frac{5}{z}=1,\,\frac{6}{x}+\frac{9}{y}-\frac{20}{z}=2$ where $x,y,z\neq 0$
- 7. If $A = 1 \cot x \cot x$, then show that $A'A^{-1} = -\cos 2x \sin 2x \sin 2x \cos 2x$