Test ID: TESTID Name: ____________________

MAT 250 **Quiz 0** Spring 2026

Define the types of row operation used to put a matrix into reduced row-echelon form:
$R1$: swap two rows
$R2$: multiply one row by a nonzero constant
$R3$: replace a row by itself plus a nonzero multiple of another row

1. The following matrix can be put into reduced row-echelon form with one row operation. Which type (or types) of row operation can be used to do this?

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

a) $R1$ b) $R2$ c) $R3$ d) $R1$ or $R2$ e) $R2$ or $R3$

Correct Answer: $R3$

2. The following matrix can be put into reduced row-echelon form with one row operation. Which type (or types) of row operation can be used to do this?

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

a) $R1$ b) $R2$ c) $R3$ d) $R1$ or $R2$ e) $R2$ or $R3$

Correct Answer: $R1$

3. The following matrix can be put into reduced row-echelon form with one row operation. Which type (or types) of row operation can be used to do this?

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

a) $R1$ b) $R2$ c) $R3$ d) $R1$ or $R2$ e) $R2$ or $R3$

Correct Answer: $R2$

4. The following matrix can be put into reduced row-echelon form by first doing a row swap, then doing one more row operation. Which type (or types) of row operation can be used to do this?

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

a) $R1$ b) $R2$ c) $R3$ d) $R1$ or $R2$ e) $R2$ or $R3$

Correct Answer: $R3$

5. The following matrix can be put into reduced row-echelon form by first doing a row swap, then doing one more row operation. Which type (or types) of row operation can be used to do this?

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

a) $R1$ b) $R2$ c) $R3$ d) $R1$ or $R2$ e) $R2$ or $R3$

Correct Answer: $R1$