

SAT/ACT Chapter Test

For use after Chapter 4

1. The matrix $\begin{bmatrix} 1 & 3 \\ 2 & 4 \end{bmatrix}$ is what type?

- (A) row (B) column
(C) square (D) zero

2. The matrix $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$ has

- (A) three rows and two columns.
(B) two rows and three columns.
(C) five columns.
(D) six rows.

3. What is the product of 3 and $\begin{bmatrix} -2 & 0 \\ 4 & -7 \end{bmatrix}$?

- (A) $\begin{bmatrix} 0 & -6 \\ -21 & 12 \end{bmatrix}$ (B) $\begin{bmatrix} -6 & -21 \\ 12 & 0 \end{bmatrix}$
(C) $\begin{bmatrix} -28 \\ -9 \end{bmatrix}$ (D) $\begin{bmatrix} -6 & 0 \\ 12 & -21 \end{bmatrix}$

4. What is the inverse of $\begin{bmatrix} 3 & 2 \\ 7 & 5 \end{bmatrix}$?

- (A) $\begin{bmatrix} 5 & -7 \\ -2 & 3 \end{bmatrix}$ (B) $\begin{bmatrix} 5 & -2 \\ -7 & 3 \end{bmatrix}$
(C) $\begin{bmatrix} 3 & 2 \\ 7 & 5 \end{bmatrix}$ (D) $\begin{bmatrix} 3 & -7 \\ -2 & 5 \end{bmatrix}$

5. What is the determinant of $\begin{bmatrix} 6 & 0 \\ 3 & 4 \end{bmatrix}$?

- (A) 24 (B) 7
(C) 0 (D) 21

6. What is the determinant of $\begin{bmatrix} 0 & 2 & 1 \\ 3 & -1 & 2 \\ 4 & -4 & 1 \end{bmatrix}$?

- (A) 38 (B) -2
(C) 2 (D) -38

Quantitative Comparison In Exercises 7–10, choose the statement that is true about the given quantities.

- (A) The quantity in column A is greater.
(B) The quantity in column B is greater.
(C) The two quantities are equal.
(D) The relationship cannot be determined from the given information.

7.

Column A	Column B
$\det \begin{bmatrix} 1 & 4 \\ 6 & 8 \end{bmatrix}$	$\det \begin{bmatrix} -4 & 1 \\ 7 & -2 \end{bmatrix}$

- (A) (B) (C) (D)

8.

Column A	Column B
x	y

when solving the equation

$$\begin{bmatrix} 2 & -3 \\ 3 & -4 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -8 \\ -9 \end{bmatrix}$$

- (A) (B) (C) (D)

9.

Column A	Column B
$\det \begin{bmatrix} x & b \\ a & y \end{bmatrix}$	$\det \begin{bmatrix} y & a \\ b & x \end{bmatrix}$

- (A) (B) (C) (D)

10. Given the formula for the area of a triangle is

$$\pm \frac{1}{2} \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix},$$

compare column A and column B.

Column A	Column B
$\triangle ABC$ with vertices $A(4, 2)$, $B(1, -2)$, $C(3, -4)$	$\triangle STU$ with vertices $S(0, 3)$, $T(1, 1)$, $U(-2, -1)$

- (A) (B) (C) (D)