

Calculate the determinant of each matrix. Show your work.

|   |   |  |
|---|---|--|
| 1. Use the diagonals method.<br>$\begin{bmatrix} -12 & -13 & 2 \\ -16 & -9 & 18 \\ 3 & -10 & -18 \end{bmatrix}$ | 2. Use the diagonals method.<br>$\begin{bmatrix} 2 & 7 & 15 \\ 0 & -8 & -17 \\ 13 & -9 & 8 \end{bmatrix}$     | 3. Use the diagonals method.<br>$\begin{bmatrix} -1 & 6 & -20 \\ -4 & -6 & -8 \\ -15 & -12 & 3 \end{bmatrix}$      |
| 4. Use the diagonals method.<br>$\begin{bmatrix} 8 & 15 & -14 \\ -4 & -17 & 6 \\ -5 & 17 & -18 \end{bmatrix}$   | 5. Use the diagonals method.<br>$\begin{bmatrix} 1 & 18 & -6 \\ -17 & 7 & 4 \\ 9 & 5 & 11 \end{bmatrix}$      | 6. Use the diagonals method.<br>$\begin{bmatrix} 19 & 20 & -1 \\ -8 & -2 & -11 \\ 12 & 18 & -18 \end{bmatrix}$     |
| 7. Use the diagonals method.<br>$\begin{bmatrix} -18 & -2 & -1 \\ 3 & 19 & -20 \\ -9 & -15 & -12 \end{bmatrix}$ | 8. Use the diagonals method.<br>$\begin{bmatrix} 7 & 0 & 16 \\ 6 & -15 & 9 \\ 13 & 12 & -4 \end{bmatrix}$     | 9. Use the diagonals method.<br>$\begin{bmatrix} 20 & 1 & -18 \\ -3 & 8 & 17 \\ 3 & 15 & -5 \end{bmatrix}$         |
| 10. Use the diagonals method.<br>$\begin{bmatrix} 3 & -3 & -6 \\ 8 & -18 & 11 \\ 19 & -10 & 20 \end{bmatrix}$   | 11. Use the diagonals method.<br>$\begin{bmatrix} 2 & -7 & 8 \\ -13 & 10 & -4 \\ 3 & -16 & 17 \end{bmatrix}$  | 12. Use the diagonals method.<br>$\begin{bmatrix} 17 & -8 & -1 \\ 2 & -16 & -10 \\ -17 & -14 & 12 \end{bmatrix}$   |
| 13. Use the diagonals method.<br>$\begin{bmatrix} -5 & -1 & 17 \\ -10 & 2 & 4 \\ -14 & 10 & -3 \end{bmatrix}$   | 14. Use the diagonals method.<br>$\begin{bmatrix} 11 & 16 & 20 \\ -5 & -9 & 6 \\ -20 & 18 & 10 \end{bmatrix}$ | 15. Use the diagonals method.<br>$\begin{bmatrix} -10 & -12 & 12 \\ -20 & -14 & -2 \\ 16 & -5 & -15 \end{bmatrix}$ |

$$16. \begin{bmatrix} -8 & -19 & 11 \\ 7 & 3 & -14 \\ 9 & 20 & -4 \end{bmatrix}$$

19. Use the diagonals method.

$$\begin{bmatrix} -19 & 4 & 15 \\ 18 & 14 & 9 \\ 7 & -3 & -2 \end{bmatrix}$$

$$17. \begin{bmatrix} -20 & -18 & 10 \\ 12 & -16 & -12 \\ -15 & -8 & -5 \end{bmatrix}$$

20. Use the diagonals method.

$$\begin{bmatrix} 14 & -19 & 5 \\ 19 & -2 & -14 \\ 12 & 13 & -5 \end{bmatrix}$$

$$18. \begin{bmatrix} -6 & -10 & 6 \\ -13 & -12 & -5 \\ 12 & -14 & 0 \end{bmatrix}$$

21. Use the diagonals method.

$$\begin{bmatrix} -2 & -4 & 16 \\ -11 & -18 & 5 \\ -13 & -16 & -8 \end{bmatrix}$$