Name _____ Date _____

WS-4a

Matrices

(Answer ID # 0970457)

Calculate the determinant of each matrix. Show your work.

1. Use the diagonals method.

$$\begin{bmatrix} -12 & -13 & 2 \\ -16 & -9 & 18 \\ 3 & -10 & -18 \end{bmatrix} \begin{matrix} -12 & -13 \\ -16 & -9 \\ 3 & -10 \end{matrix}$$

-1944 + -702 + 320 - -54 - 2160 - -3744, or -688

2. Use the diagonals method.

$$\begin{bmatrix} 2 & 7 & 15 \\ 0 & -8 & -17 \\ 13 & -9 & 8 \end{bmatrix}$$

-128 + -1547 + -0 - -1560 - 306 - 0, or -421

3. Use the diagonals method.

$$\begin{bmatrix} -1 & 6 & -20 \\ -4 & -6 & -8 \\ -15 & -12 & 3 \end{bmatrix}$$

18 + 720 + -960 - -1800 - -96 - -72, or 1746

4. Use the diagonals method.

$$\begin{bmatrix} 8 & 15 & -14 \\ -4 & -17 & 6 \\ -5 & 17 & -18 \end{bmatrix}$$

2448 + -450 + 952 - -1190 - 816 - 1080, or 2244

5. Use the diagonals method.

$$\begin{bmatrix} 1 & 18 & -6 \\ -17 & 7 & 4 \\ 9 & 5 & 11 \end{bmatrix}$$

77 + 648 + 510 - -378 - 20 - -3366, or 4959

6. Use the diagonals method.

$$\begin{bmatrix} 19 & 20 & -1 \\ -8 & -2 & -11 \\ 12 & 18 & -18 \end{bmatrix}$$

684 + -2640 + 144 - 24 - -3762 - 2880, or -954

7. Use the diagonals method.

$$\begin{bmatrix} -18 & -2 & -1 \\ 3 & 19 & -20 \\ -9 & -15 & -12 \end{bmatrix}$$

4104 + -360 + 45 - 171 - -5400 - 72, or 8946

8. Use the diagonals method.

$$\begin{bmatrix} 7 & 0 & 16 \\ 6 & -15 & 9 \\ 13 & 12 & -4 \end{bmatrix} \begin{matrix} 7 & 0 \\ 6 & -15 \\ 13 & 12 \end{matrix}$$

420 + 0 + 1152 - -3120 - 756 - -0, or 3936

9. Use the diagonals method.

$$\begin{bmatrix} 20 & 1 & -18 \\ -3 & 8 & 17 \\ 3 & 15 & -5 \end{bmatrix}$$

-800 + 51 + 810 - -432 - 5100 - 15, or -4622

10. Use the diagonals method.

$$\begin{bmatrix} 3 & -3 & -6 \\ 8 & -18 & 11 \\ 19 & -10 & 20 \end{bmatrix}$$

-1080 + -627 + 480 - 2052 - -330 - -480, or -2469

11. Use the diagonals method.

$$\begin{bmatrix} 2 & -7 & 8 \\ -13 & 10 & -4 \\ 3 & -16 & 17 \end{bmatrix}$$

340 + 84 + 1664 - 240 - 128 - 1547, or 173

12. Use the diagonals method.

$$\begin{bmatrix} 17 & -8 & -1 \\ 2 & -16 & -10 \\ -17 & -14 & 12 \end{bmatrix}$$

-3264 + -1360 + 28 - -272 - 2380 - -192, or -6512

13. Use the diagonals method.

$$\begin{bmatrix} -5 & -1 & 17 \\ -10 & 2 & 4 \\ -14 & 10 & -3 \end{bmatrix}$$

30 + 56 + -1700 - -476 - -200 - -30, or -908

14. Use the diagonals method.

$$\begin{bmatrix} 11 & 16 & 20 \\ -5 & -9 & 6 \\ -20 & 18 & 10 \end{bmatrix}$$

-990 + -1920 + -1800 - 3600 - 1188 - -800, or -8698

15. Use the diagonals method.

$$\begin{bmatrix} -10 & -12 & 12 \\ -20 & -14 & -2 \\ 16 & -5 & -15 \end{bmatrix}$$

-2100 + 384 + 1200 - -2688 - -100 - -3600, or 5872

16. Use the diagonals method.

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

96 + 2394 + 1540 - 297 - 2240 - 532, or 961

17. Use the diagonals method.

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

-1600 + -3240 + -960 - 2400 - -1920 - 1080, or -7360

18. Use the diagonals method.

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

0 + 600 + 1092 - -864 - -420 - 0, or 2976

19. Use the diagonals method.

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

532 + 252 + -810 - 1470 - 513 - -144, or -1865

20. Use the diagonals method.

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

140 + 3192 + 1235 - -120 - -2548 - 1805, or 5430

21. Use the diagonals method.

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

-288 + 260 + 2816 - 3744 - 160 - -352, or -764