Secondary I Name_____

Matrices Review Worksheet

Period____

Simplify. Write "undefined" for expressions that are undefined.

1) $\begin{bmatrix} -4 \\ 5 \\ -1 \\ -2 \end{bmatrix} + \begin{bmatrix} 3 \\ -5 \\ 0 \\ -1 \end{bmatrix}$

2) $\begin{bmatrix} 1 & -2 \\ -6 & -3 \\ 4 & -3 \end{bmatrix} - \begin{bmatrix} 3 & -4 \\ 1 & -2 \\ -5 & 5 \end{bmatrix}$

3) $\begin{bmatrix} 3 & 4 \\ -5 & -2 \\ 6 & 2 \end{bmatrix} - \begin{bmatrix} 1 & 3 & -2 & -3 \end{bmatrix}$

4) $5\begin{bmatrix} -4 & -5 & -6 \end{bmatrix}$

5) $4\begin{bmatrix} 3 & 5 \\ 2 & -2 \end{bmatrix}$

6) $-2\begin{bmatrix} -3 & 1 & -4 & 0 \end{bmatrix}$

7) $\begin{bmatrix} -4 & 0 & 2 & -5 \end{bmatrix} - 5\begin{bmatrix} -5 & -2 & 0 & 4 \end{bmatrix}$

8) $\begin{bmatrix} 1 & -5 & 4 \end{bmatrix} - \begin{bmatrix} 6 & 4 & 0 \end{bmatrix} + \begin{bmatrix} -2 & 0 & 6 \end{bmatrix}$

9) $4\left(\begin{bmatrix} 1 & -4 \\ -6 & 5 \\ -4 & 2 \end{bmatrix} + \begin{bmatrix} -4 & -6 \\ 1 & 3 \\ -1 & -4 \end{bmatrix}\right)$

10) $\begin{bmatrix} 6 & 4 & 1 \\ 0 & -3 & -2 \end{bmatrix} \cdot \begin{bmatrix} -1 & -2 \\ 6 & 1 \\ 3 & -6 \end{bmatrix}$

11) $\begin{bmatrix} -5 & -3 \\ 4 & 2 \end{bmatrix} \cdot \begin{bmatrix} -2 & -3 & -4 \\ 1 & -2 & -4 \end{bmatrix}$

12) $\begin{bmatrix} -4 \\ -6 \end{bmatrix} \cdot \begin{bmatrix} -6 & -4 & 1 \end{bmatrix}$

13) $\begin{bmatrix} 6 & -1 & 4 \\ 2 & 2 & -1 \end{bmatrix} \cdot \begin{bmatrix} -6 & -4 \\ 5 & 4 \\ 6 & -5 \end{bmatrix}$

14) $\begin{bmatrix} -2 & 1 \\ -3 & 4 \\ -4 & -3 \end{bmatrix} \cdot \begin{bmatrix} 2 & -1 \\ 4 & 3 \\ -6 & 5 \end{bmatrix}$

Evaluate each determinant.

15) $\begin{vmatrix} -1 & 4 \\ -1 & -3 \end{vmatrix}$

16) $\begin{vmatrix} -2 & -2 \\ 0 & -4 \end{vmatrix}$

17) $\begin{vmatrix} 2 & 5 \\ -1 & 3 \end{vmatrix}$

18) $\begin{vmatrix} -5 & -5 \\ 0 & 0 \end{vmatrix}$

19) $\begin{vmatrix} 2 & -5 & 0 \\ 2 & 2 & 2 \\ 3 & -2 & -4 \end{vmatrix}$

20) $\begin{vmatrix} 5 & -4 & 2 \\ -2 & -2 & 2 \\ 2 & -4 & -3 \end{vmatrix}$

21) $\begin{vmatrix} -3 & -2 & 2 \\ 4 & -5 & 3 \\ 2 & -5 & -2 \end{vmatrix}$

22) $\begin{vmatrix} -2 & 4 & 0 \\ 5 & 4 & 3 \\ 3 & -1 & -5 \end{vmatrix}$

Solve each equation.

23) $\begin{bmatrix} 7 & -2 \\ 2 & 10 \end{bmatrix} = Z - \begin{bmatrix} -10 & 2 \\ -3 & -1 \end{bmatrix}$

24) $2Y = \begin{bmatrix} 2 & -4 & 22 \end{bmatrix}$

25) $-2A = \begin{bmatrix} 12 & -8 \end{bmatrix}$

26) $-5B + \begin{bmatrix} 5 & -7 \\ -2 & 2 \end{bmatrix} = \begin{bmatrix} 30 & -37 \\ 28 & -23 \end{bmatrix}$

27) $\begin{bmatrix} 43 & -35 \\ -5 & -1 \end{bmatrix} = -5Y + \begin{bmatrix} 8 & 10 \\ 0 & -11 \end{bmatrix}$

28) $\begin{bmatrix} -2 & -33 \\ -1 & -13 \end{bmatrix} = \begin{bmatrix} 2 & 3 \\ 1 & 1 \end{bmatrix} C$

29) $\begin{bmatrix} 5 \\ 5 \end{bmatrix} = \begin{bmatrix} -1 & 11 \\ 0 & 5 \end{bmatrix} X$

30) $\begin{bmatrix} -3 & -3 \\ -3 & -1 \end{bmatrix} X = \begin{bmatrix} 6 & 33 & 6 \\ -4 & 15 & -8 \end{bmatrix}$

31) $\begin{bmatrix} 31 & -26 \\ 16 & -20 \end{bmatrix} = \begin{bmatrix} -1 & 7 \\ 0 & 4 \end{bmatrix} A$

32) $\begin{bmatrix} 0 & 2 \\ -1 & 5 \end{bmatrix} X = \begin{bmatrix} 16 & -10 & 18 \\ 32 & -33 & 36 \end{bmatrix}$

33) $\begin{bmatrix} -2 & 3 \\ 8 & -8 \end{bmatrix} X - \begin{bmatrix} -1 \\ -9 \end{bmatrix} = \begin{bmatrix} 20 \\ -31 \end{bmatrix}$

34) $\begin{bmatrix} 15 \\ 3 \end{bmatrix} = \begin{bmatrix} -7 \\ -11 \end{bmatrix} - \begin{bmatrix} -3 & 4 \\ -1 & 2 \end{bmatrix} X$

Write the system of equations. Rewrite the system of equations as a matrix problem and use the graphing calculator to solve. Make sure you label your answers

35) Paul and Jaidee are selling cheesecakes for a school fundraiser. Customers can buy New York style cheesecakes and apple cheesecakes. Paul sold 13 New York style cheesecakes and 9 apple cheesecakes for a total of $205. Jaidee sold 1 New York style cheesecake and 10 apple cheesecakes for a total of $174. Find the cost each of one New York style cheesecake and one apple cheesecake.

36) Mofor and Kali each improved their yards by planting hostas and shrubs. They bought their supplies from the same store. Mofor spent $160 on 2 hostas and 12 shrubs. Kali spent $168 on 12 hostas and 6 shrubs. Find the cost of one hosta and the cost of one shrub.

37) Amy's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 10 adult tickets and 12 student tickets for a total of $162. The school took in $25 on the second day by selling 1 adult ticket and 2 student tickets. What is the price each of one adult ticket and one student ticket?

Answers to Matrices Review Worksheet (ID: 1)

1) $\begin{bmatrix} -1 \\ 0 \\ -1 \\ -3 \end{bmatrix}$

2) $\begin{bmatrix} -2 & 2 \\ -7 & -1 \\ 9 & -8 \end{bmatrix}$

3) Undefined

4) $\begin{bmatrix} -20 & -25 & -30 \end{bmatrix}$

5) $\begin{bmatrix} 12 & 20 \\ 8 & -8 \end{bmatrix}$

6) $\begin{bmatrix} 6 & -2 & 8 & 0 \end{bmatrix}$

7) $\begin{bmatrix} 21 & 10 & 2 & -25 \end{bmatrix}$

8) $\begin{bmatrix} -7 & -9 & 10 \end{bmatrix}$

9) $\begin{bmatrix} -12 & -40 \\ -20 & 32 \\ -20 & -8 \end{bmatrix}$

10) $\begin{bmatrix} 21 & -14 \\ -24 & 9 \end{bmatrix}$

11) $\begin{bmatrix} 7 & 21 & 32 \\ -6 & -16 & -24 \end{bmatrix}$

12) $\begin{bmatrix} 24 & 16 & -4 \\ 36 & 24 & -6 \end{bmatrix}$

13) $\begin{bmatrix} -17 & -48 \\ -8 & 5 \end{bmatrix}$

14) Undefined

15) 7

16) 8

17) 11

18) 0

19) −78

20) 102

21) −123

22) 170

23) $\begin{bmatrix} -3 & 0 \\ -1 & 9 \end{bmatrix}$

24) $\begin{bmatrix} 1 & -2 & 11 \end{bmatrix}$

25) $\begin{bmatrix} -6 & 4 \end{bmatrix}$

26) $\begin{bmatrix} -5 & 6 \\ -6 & 5 \end{bmatrix}$

27) $\begin{bmatrix} -7 & 9 \\ 1 & -2 \end{bmatrix}$

28) $\begin{bmatrix} -1 & -6 \\ 0 & -7 \end{bmatrix}$

29) $\begin{bmatrix} 6 \\ 1 \end{bmatrix}$

30) $\begin{bmatrix} 3 & -2 & 5 \\ -5 & -9 & -7 \end{bmatrix}$

31) $\begin{bmatrix} -3 & -9 \\ 4 & -5 \end{bmatrix}$

32) $\begin{bmatrix} 8 & 8 & 9 \\ 8 & -5 & 9 \end{bmatrix}$

33) $\begin{bmatrix} 4 \\ 9 \end{bmatrix}$

34) $\begin{bmatrix} -6 \\ -10 \end{bmatrix}$

35) New York style cheesecake: \$4, apple cheesecake: \$17

36) hosta: \$8, shrub: \$12

37) adult ticket: \$3, student ticket: \$11