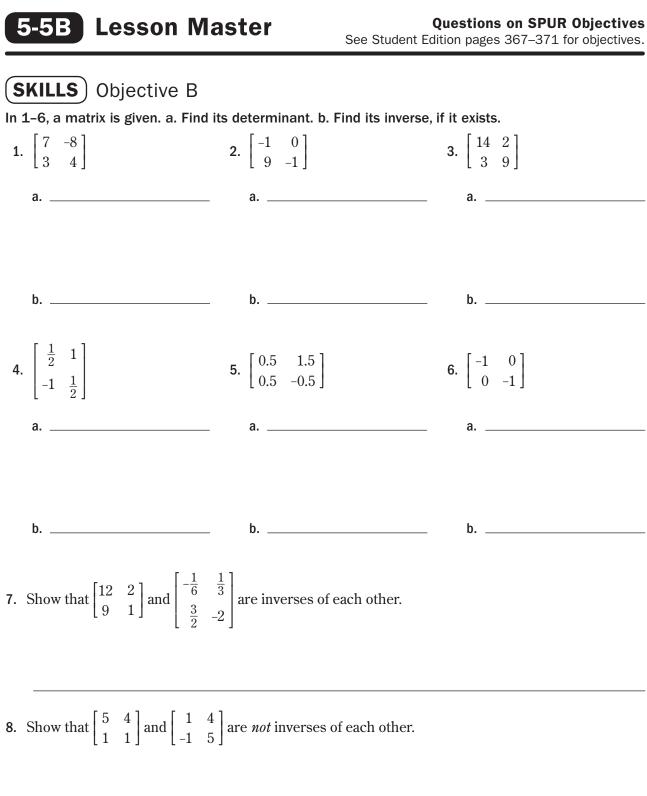
Name



Name

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9. Consider the matrix $\begin{bmatrix} 5 & 4 \\ c & 8 \end{bmatrix}$. For what values of <i>c</i> does the matrix <i>not</i>	
10. The matrix for S_4 is $\begin{bmatrix} 4 & 0 \\ 0 & 4 \end{bmatrix}$.	
a . Find the inverse of the matrix for S_4 .	
b . Explain the result to Part a geometrically.	
11. What transformation is represented by $\begin{bmatrix} 0.7 & 0 \\ 0 & 0.7 \end{bmatrix}$?	
12. Use a calculator to find the inverse of $\begin{bmatrix} 8 & -1 & 1 \\ -4 & 3 & -3 \\ -12 & 9 & 11 \end{bmatrix}$.	
13 . Jorge and Heidi enjoy sending messages back and forth to each other in code. Heidi receives the coded message 41, 61, 45, 45, 74, 76, 27, 39, 19, 14, 78, 75. Jorge tells Heidi he used the encoding matrix $\begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$ and that the key is [space] = 26, A = 27, B = 1, C = 2, D = 3, etc.	
a . Find the decoding matrix Heidi needs.	
b. Write the coded message as a 2×6 matrix.	
c. Give the product of the matrices from Parts a and b	
d. What message did Jorge send?	
e. Heidi encodes the message "SAME TO YOU" and sends it to Jorge. What coded message does he receive?	