

## Lesson 29: When Can We Reverse a Transformation?

### Classwork

#### Opening Exercise

Find the inverse of  $\begin{bmatrix} -7 & -2 \\ 4 & 1 \end{bmatrix}$ . Show your work. Confirm that the matrices are inverses.

#### Exercises

1. Find the inverse of  $\begin{bmatrix} 5 & 3 \\ 2 & 4 \end{bmatrix}$ . Confirm your answer.

Find the inverse matrix and verify.

2.  $\begin{bmatrix} 3 & -3 \\ 1 & 4 \end{bmatrix}$

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

4.  $\begin{bmatrix} a & c \\ b & d \end{bmatrix}$

**Example 1**

Find the determinant of  $\begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$ .

## Problem Set

Find the inverse matrix of the following.

a.  $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

b.  $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$

c.  $\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$

d.  $\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$

e.  $\begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}$

f.  $\begin{bmatrix} -2 & 2 \\ -5 & 4 \end{bmatrix}$

g.  $\begin{bmatrix} 4 & 6 \\ 5 & 8 \end{bmatrix}$

h.  $\begin{bmatrix} 6 & -9 \\ 5 & -7 \end{bmatrix}$

i.  $\begin{bmatrix} \frac{1}{2} & -\frac{2}{3} \\ -6 & 4 \end{bmatrix}$

j.  $\begin{bmatrix} 0.8 & 0.4 \\ -0.75 & -0.5 \end{bmatrix}$