Name:
Tardis:

Quiz 6

Let

$$A = \begin{bmatrix} 3 & 1 \\ 1 & 2 \end{bmatrix}, \qquad B = \begin{bmatrix} 3 & 1 \\ 1 & 1 \end{bmatrix}.$$

Compute the product

$$\det(A^2B)\det(A^{-1}B^3).$$

Hint: You should not need to perform any matrix multiplication.

Observe that

$$\det A = (3)(2) - (1)(1) = 5,$$
$$\det B = (3)(1) - (1)(1) = 2.$$

Also

$$\begin{aligned} \det(A^2B)\det(A^{-1}B^3) &= (\det A)^2(\det B)(\frac{1}{\det A})(\det B)^3 \\ &= 5 * 2^4 \\ &= 80. \end{aligned}$$