Sums of Squares (SOS)

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0.0/10.0 points (graded)

Consider the polynomial:

$$p(x_1, x_2) = 2x_1^4 + 2x_1^3 x_2 - x_1^2 x_2^2 + 5x_2^4.$$

Prove that this polynomial is nonnegative by finding a representation as follows:

$$p(x_1, x_2) = \begin{bmatrix} x_1^2 \\ x_2^2 \\ x_1 x_2 \end{bmatrix}^T Q \begin{bmatrix} x_1^2 \\ x_2^2 \\ x_1 x_2 \end{bmatrix},$$

where Q is given by:

$$Q = \begin{bmatrix} 2, & a, & 1 \\ a, & 5, & 0 \\ 1, & 0, & b \end{bmatrix}.$$

Here Q must be positive semidefinite. Type in your values for a and b below. **Make sure that the resulting Q is positive semidefinite**.

```
a = ;
b = ;

```

Unanswered

Run Code

Submit You have used 0 of 2 attempts