2025 USA-NA-AIO Round 2, Problem 1, Part 3

USAAIO 🛡️   **May 2025**

Part 3 (5 points, coding task)

Do the following tasks:

Let `x` be a tensor with shape `(N,2)`.

1. What is the number of dimensions of `model(x)`?

2. What is the shape of `model(x)`?

3. Explain the reasoning of your answers.

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Misplaced '#'

1. The dimension of `model(x)` is 2.

2. The shape of `model(x)` is `(N,1)`.

3. For each sample, the output is a 1-dim tensor with shape `(1,)`. Therefore, by having `N` samples, we get the answers above.

"" END OF THIS PART ""

Doughwhee   **Nov 2025**

The model takes in 2 input features to produce an output feature, so with a batch of size N, the shape of `model(x)` will be `(N,1)`, making the number of dimensions `2`.

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