M12 Concept Question 1

For the pin-ended, end-loaded, rod shown on the board, what are the most useful boundary conditions in order to solve for the buckling load?

1.
$$x_1 = 0: \quad w = 0, \quad \frac{d^2w}{dx^2} = 0$$
$$x_1 = L: \quad w = 0, \quad \frac{d^2w}{dx^2} = 0$$

2.
$$x = 0: \quad w = 0, \quad \frac{dw}{dx} = 0$$
$$x = L: \quad w = 0, \quad \frac{dw}{dx} = 0$$

3.
$$x = 0: \quad w = 0, \quad x = \frac{L}{2}: \quad \frac{dw}{dx} = 0$$

4.
$$x = 0: \quad w = 0, \quad x = L: \quad w = 0$$

5.
$$x = 0: w = 0, \quad x = \frac{L}{2}: \frac{dw}{dx} = 0, \quad x = L: w = 0$$

6. Some other answer

7. I do not know/I do not understand.