Assignment 2

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Question

The average cost function associated with producing and marketing x units of an item is given by AC $= 2x - 11 + \frac{50}{x}$. Find the range of values of the output x, for which AC is increasing.

Solution

The average cost function associated with producing and marketing x units of an item is given as:
AC $= 2x - 11 + \frac{50}{x}$
Output for which AC increases is: $\frac{d(AC)}{d(x)} > 0$
$\implies \frac{d}{dx}(2x - 11 + \frac{50}{x}) > 0$
$\implies$ (x$^2 - 25) > 0$
$\implies (x - 5)(x + 5) > 0$
$\implies x > 5$ as $(x > 0)$

$\therefore$ the average cost function when output $x > 5$.