## Exercise 33

For the following exercises, consider this scenario: The population of a city increased steadily over a ten-year span. The following ordered pairs shows the population (in hundreds) and the year over the ten-year span, (population, year) for specific recorded years:

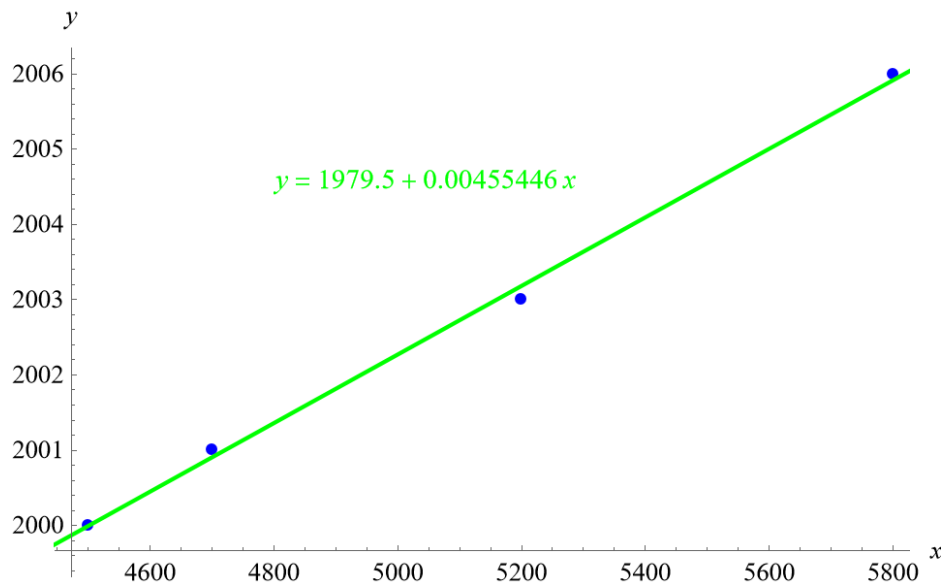$$(4{,}500, 2000); (4{,}700, 2001); (5{,}200, 2003); (5{,}800, 2006)$$

What is the correlation coefficient for this model?

[TYPO: Replace "shows" with "show."]

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**Solution**

Draw the following points on a graph: $(4500, 2000)$, $(4700, 2001)$, $(5200, 2003)$, $(5800, 2006)$.



Mathematica's FindFit function gives

$$y = 1979.500 + 0.00455x$$

as the line that best fits the data. Mathematica's Correlation function gives

$$r = 0.999$$

as the correlation coefficient.