Remainder and Factor Theorems

Instruction. **Read and understand the questions carefully.**

Case 1

The number of international travelers to the United States since 1986 can be modelled by the equation $T(x) = 0.02x^3 - 0.6x^2 + 6x + 25.9$, where x is the number of years since 1986 and $T(x)$ is the number of travelers in 2006, you can evaluate the function for $x = 20$.

Solution

Given :

Find :

Alternative solution :

Case 2

When a certain type of plastic is cut into sections, the length of each section determines its strength. The function $P(x) = x^4 - 14x^3 + 69x^2 - 140x + 100$ can describe the relative strength of a section of length x feet. Sections of plastics x feet long, where $P(x) = 0$, are extremely week. After testing the plastic, engineers discovered that section 5 feet long were extremely weak.

a. Show that $x - 5$ is factor of the polynomial function
b. Are the other lengths of plastic that are extremely week? Explain your reasoning.

Solution

Given :

Find :

Alternative solution :

Case 3 :

Find value of k so that the remainder is 3 from dividend $x^3 + 4x^2 + x + k$ and divisor $x + 2$.

Solution.

Please check this video to take clue of each problem