Multivar Quiz #1 Saaif Ahmed

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Honor Pledge:
   "I have neither given nor received any illegal aid on this exam"
      -Saaif Ahmed 9/9/20

A rectangular box has dimensions $x = 10$ cm, $y = 10$ cm, and $z = 20$ cm. Use the linear approximation to estimate by how many cubic centimeters the volume of the box will increase or decrease if its dimensions become $x = 10.1$ cm, $y = 9.9$ cm, and $z = 20.3$ cm.

$V = xyz$
$V_x = yz$
$V_y = xz$
$V_z = xy$

$V_{approx} = V_{og} + V_x(\Delta x) + V_y(\Delta y) + V_z(\Delta z)$
$V_{approx} = 2000 + 20 - 20 + 30$
$V_{approx} = 2030 \ cm^3$

Thus the volume increase by roughly $30 \ cm^3$