Assume the position

An asteroid approaches the Earth at a distance of 12 times the Earth's radius as measured from the center of the Earth, with a velocity of 1.2×10^4 m/s.

What is its velocity when it hits the Earth?

$m_{earth} = 5.98 \times 10^{24}$ kg

$r_{earth} = 6.37 \times 10^6$ m