MHF4U Polynomial Word Problems

1. A steel cube is uniformly coated with ice. The volume of ice is given by $y = 8x^3 + 36x^2 + 54x$ cm^3, where x is the thickness of the ice. Find the thickness of the ice when its volume is 2170 cm^3.

2. The height, length, and width of a small box are consecutive integers with the height being the smallest of the three dimensions. If the length and width are increased by 1 cm each and the height is doubled, then the volume is increased by 120 cm^3. Find the dimensions of the original box.

3. The passenger section of a train has width $2x$-7, length $2x$+3, and height x-2, with all dimensions in metres. Solve a polynomial equation to determine the dimensions of the section of the train if the volume is 117 m^3.

Answers: 1/ 5 cm 2/ 3,4,5 cm 3/ 13x3x3 m