

Exercises — Word problems: polynomial equations

1. The length of a rectangular box is one inch greater than its width. The height is three times the length. The diagonal of the box exceeds the height by one inch. Find the volume of the box.
2. A trip between two cities 175 miles apart take 1.5 hours less by train than by bus. The average speed of the bus is 15 miles per hours less than the train. Find the average speeds of the train and the bus.
3. The length of a room exceeds the width by 5 feet, and the height is 3 feet less than the width. The area of the four walls exceeds the sum of the areas of the floor and the ceiling by 240 square feet. Find the dimensions of the room.
4. A rectangular piece of cardboard is 15 inches longer than it is wide. If 5-inch squares are cut from each corner, and the remaining piece folded up to form a box, the volume of the box is 1250 cubic inches. Find the dimensions of the piece of cardboard.
5. A party of students rented a motor boat, B, and shared to cost equally. If the number of students had been 5 less, they could have used a smaller boat costing only half as much as B and the expense to each would have been 50 cents less. If there had been 10 more students in the party, they would have required a larger boat costing 20% more than B, but the expense to each would have been 30 cents less. How many students were in the party?
6. It will take a boy 15 days longer than a man to paint a certain house, but if 3 boys and 2 men work together the whole job can be completed in $3\frac{1}{8}$ days. How long does it take a boy to paint the house alone?
7. A monument consists of two cubical blocks of granite, the smaller resting on the larger. The total height of the monument is 5 feet, and the area of the exposed surface is 61 square feet. Find the dimensions of the blocks.