

- IV. The volume of a cylinder varies directly as the height and the square of the radius. A cylinder with radius 5 cm and height 10 cm has volume 785 cm^3 . Find the volume of a cylinder with radius 10 cm and height 15 cm.
- V. In a certain manufacturing process, the cost of producing a single item varies inversely as the square of the number of items produced. If 100 items are produced, each costs \$1.50. Find the cost per item if 250 items are produced.
- VI. Vanessa has determined that the number of children enrolled in her day care center varies directly with the amount she spends on advertising per year and inversely with her weekly charge for each child. This year she spent \$900 on advertising, charged \$150 per child per week, and had 51 children enrolled. Next year, if she spends \$1000 on advertising and charges \$170 per week, how many children should she expect to enroll?