

9. A room is 20 feet long and 16 feet wide: what must be the height in order that the area of the floor and ceiling together may be equal to the area of the walls?

10. Two trains, each 88 yards long, when moving in the same direction pass each other in 18 seconds, and in 6 seconds when moving in opposite directions: find the rates of the trains.

XIV.

1. The difference between the interest and the discount on a sum of money for one year and 9 months at 8 per cent. per annum, was \$9.80: find the sum of money.

2. A room whose length is $1\frac{1}{2}$ times its breadth, and height 12 ft., takes 156 yards of paper, 24 inches wide, to cover its walls: what will it cost to carpet the floor with carpet 27 inches wide and \$1.25 per yard?

3. The interest on a sum of money for 5 years is \$140, and the discount for the same time and rate is \$100: find the sum and rate per cent.

Sol.— $140 - 100 = 40 = \text{int. on } 100 \therefore \frac{40}{100} = \frac{2}{5} \text{ i. e., int. is } \frac{2}{5} \text{ of principal} \therefore \text{disct.} = \frac{2}{7}$;
then 140 is $\frac{2}{5}$ of \$3502 principal, &c.

4. A grocer bought green tea and black in the ratio of 2:1, the former costing 70 cents per pound, the latter 80 cents—the whole costing \$44: how much will he make by selling the whole at a uniform price of 90 cents per pound?

5. What amount of accounts must an agent collect in order to pay over \$1,100 after retaining $8\frac{1}{2}$ per cent. for collecting?