

- 1) Two numbers differ by 11. One-fourth of 6 more than the larger number is 3 more than one-third of the number that exceeds the smaller by 2. Find the numbers.

$$\begin{aligned}x - y &= 11 & \mathbf{x = 18} & \quad \mathbf{y = 7} \\ \frac{1}{4}(6 + x) &= 3 + \frac{1}{3}(y + 2)\end{aligned}$$

- 2) A prepared mixture of sand and cement contains 2 cu.ft. of cement and 5 cu.ft. of sand. A patching job calls for a mixture that is 25% cement. How much sand must be added to produce the required mixture?

$$\frac{2}{7 + x} = \frac{1}{4} \qquad \mathbf{x = 1 \text{ cu.ft.}}$$

- 3) One-third of a number plus three-quarters of the number exceeds the number itself by 3. Find the number.

$$\frac{1}{3}x + \frac{3}{4}x = x + 3 \qquad \mathbf{x = 36}$$

- 4) We divide 36 into two parts such that one-third of the larger added to four-thirds of the smaller equals the larger. Find the parts.

$$\begin{aligned}x + y &= 36 & \mathbf{x = 24} & \quad \mathbf{y = 12} \\ \frac{1}{3}x + \frac{4}{3}y &= x\end{aligned}$$

- 5) How much water must be evaporated from 60 gallons of a 5% solution to raise it to a 20% solution?

$$0.05(60) = 0.20(60 - x) \qquad \mathbf{x = 45 \text{ gal.}}$$

- 6) A city dweller drove his car 60 miles into the country. He drove back to the city at a rate of 45 miles per hour. If the entire trip took 3 hours 20 minutes, at what rate of speed did the man drive into the country? (Assume he did not dilly-dally in the country.)

$$\frac{60}{x} + \frac{60}{45} = 3 \frac{1}{3} \qquad \mathbf{x = 30 \text{ mph}}$$