

3. I sell $12\frac{1}{2}$ tons of coal for \$80, which is one-seventh more than the cost. Find the gain per cwt.

4. $\cdot 001 \times \cdot 001 \div \cdot 0001$.

5. A cistern is two-thirds full; one pipe runs out and two run in. The first pipe can empty it in eight hours, the second can fill it in twelve hours, and the third can fill it in sixteen hours. There is also a leak half as large as the second pipe. In how many hours will the cistern be half full?

6. Ten men can do a piece of work in twelve days. After they have worked four days, three boys join them in the work, by which means the whole is done in ten days. What part of the work is done by one boy in one day?

7. I buy a number of boxes of oranges for \$600, of which 12 boxes are unsaleable. I sell two-thirds of the remainder for \$400, and gain on them \$40. How many boxes did I buy?

8. Find the total cost of the following:—Cutting a pile of wood 80 ft. long, 6 ft. high, and 4 ft. wide, at 60c. per cord. Digging a cellar 44 ft. long, 30 ft. wide, and 8 ft. deep, at 18c. per cubic yard. Plastering a room 24 ft. long, 16 ft. wide and 10 ft. high, at 15c. per square yard. Sawing 6800 shingles, at 40c. per 1000.

The Independent Method, or the Method of Reduction to the Unit, introduced at page 89, may with advantage be employed to solve questions which can also readily be done by the Rule of Three. We subjoin a few more examples, showing how to apply the method referred to.

1. If 27 men build a house in 63 days, in how many days will 42 men do the same?

$$\begin{array}{llll} & 27 \text{ men build a house in } 63 \text{ days;} \\ \therefore & 1 \text{ man} & \text{"} & 63 \times 27 \text{ days;} \\ & 42 \text{ men} & \text{"} & \frac{63 \times 27}{42} \text{ days;} \\ \therefore & \text{Number of days required} = & \frac{63 \times 27}{42} = & 40\frac{1}{2}. \end{array}$$