

9. A farmer at a sale spent \$100 in purchasing sheep. Having lost 7 of them he sold $\frac{1}{4}$ of the number left for \$50, gaining \$2 on the number sold. How many sheep did he buy? *Ans.* 25.

10. James owed John $\frac{1}{2}$ of what John owed George. John gave George 10c. and told him he would give 50c. to James to put the account among them all straight. How much did John owe George? *Ans.* \$3.

11. *A*, *B*, and *C*, can do a piece of work in 25 mins., 30 mins., and 15 mins., respectively. The three begin to work at the same time. Find when *C* may leave that the work may be just finished in 10 mins.

Ans. 4 mins.

12. $\frac{1}{2}$ of my money is in \$20 bills, $\frac{1}{3}$ of the remainder is in \$10 bills, $\frac{1}{4}$ of this remainder is in \$5 bills, $\frac{1}{5}$ of this remainder is in \$2 bills, and the balance, \$10 in silver, consists of 50c. pieces and 25c. pieces, in the ratio of 3 : 4. Find the total number of the various denominations. *Ans.* 50.

13. A farmer divides 100 acres of land between his two sons, so that the elder son's share in addition to 15 acres was to the younger son's share as 15 : 8. Find share of each. *Ans.* 60, 40.

14. *A* pays a tax on his income of 5 mills on the \$, *B* pays a tax on his of $4\frac{1}{2}$ mills on the \$. *B*'s tax amounts to 5 cts. less than *A*'s though his income exceeds that of *A* by \$100. Find *A*'s income. *Ans.* \$1,000.

15. *A* does $\frac{1}{3}$ of a piece of work in 12 days. He then gets his son to help him and they finish the work in 5 days. more. If \$20 be paid for the work, find the daily wages of the son. *Ans.* 60c.

16. A wine merchant has wine worth \$1.75 per gal. which he desires to sell for \$1.50 per gal. and neither gain or lose. In what ratio must he mix water with his wine to accomplish his purpose? *Ans.* 1 : 6.

17. A man spends $\frac{1}{4}$ of his money, then $\frac{1}{3}$ of the remainder, then a certain sum, then $\frac{1}{5}$ of this remainder, and then he has left \$50, or \$25 less than if he had spent only $\frac{1}{4}$ of that

certain sum. How much did he have at first? *Ans.* \$300.

18. Two trains, 120 ft. and 144 ft. long respectively, are observed to pass each other when going in opposite directions in 4 secs., and when going in the same direction in 12 secs. Find their rates in miles per hour.

Ans. 30; 15.

19. My purse and the money in it are worth \$71.50. If I lose $\frac{1}{4}$ of my money and spend $\frac{1}{5}$ of the remainder, and then sell the purse, gaining $\frac{1}{4}$ of its value, I shall lose on the whole \$8.33 $\frac{1}{3}$. How much money had I at first? *Ans.* \$70.

20. I ask a jeweller the price of a certain gold ornament. He replies, "This article weighs $1\frac{1}{2}$ oz., of which 18 parts out of 24 are pure gold. The price of pure gold per oz. is \$20.48, which is seven times as much as alloy is worth, and the making costs me $\frac{1}{4}$ as much as the material." If I give him \$28 in bills which are worth only $\frac{1}{4}$ of their face value in silver, how much silver should he return to me? *Ans.* \$2.20.

21. The beams of wood used in building a house are 6 in. thick by 10 in. wide; 72 of these are used, which together amount to 450 cub. ft. Find the length of each piece of timber. *Ans.* 15 ft.

22. A layer of coal 4 ft. thick underlies the whole of a farm of 100 acres. Find the value of the coal, at \$3.75 per ton of 2000 lbs. (1 cub. yd. of coal = 1 ton of 2240 lbs.) *Ans.* \$27104.00.

23. A cistern measures in length, depth and breadth, 4 ft. $9\frac{1}{2}$ in., 6 ft. 8 in., 4 ft. 6 in., respectively. Find the number of gallons it will hold. (1 cub. ft. = 1000 oz.; 1 gal. = 10 lbs.) *Ans.* 900.

24. The floor of a room, 25 ft. 6 in. long by 20 ft. 8 in. wide, is covered with carpet 30 in. wide, at 75c. per yd. If the cost of carpeting the floor exceeds that of papering the walls with paper 18 in. wide at 9c. per yd., by \$25, find the height of the ceiling.

Ans. 15 feet.