

SOLUTIONS OF THE PROBLEMS

11. 12, page 170.

12. 9, page 194.

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13. Apply formula page 87 to find area.

14. Cost of mixture = 75c. a pint. But 75c. is the cost of only $\frac{1}{3}$ pint of wine. $\therefore \frac{1}{3}$ of the mixture is water.

15. In 1 hr. A does $\frac{1}{80}$ and B $\frac{1}{81}$ of the work. $\therefore$ both do $\frac{17}{720}$. $\therefore$ they do all the work in $\frac{6480}{17}$, or $40\frac{40}{17}$ hr.

16. $\frac{32}{7}r^2 = 1386$, $\therefore r = 10.5$. $\therefore$ vol. of sphere = $\frac{4}{3} \times \frac{22}{7} \times (10.5)^3 = 4851$ cu. in. Edge of cube = 16 in. $\therefore$ vol. of cube = 4096 cu. in.

17. Face of draft = \$400. $\therefore$ no. of shares = 50.

18. Suppose weight of each is 120 grains. The first contains 110 of gold and 10 of alloy, which is the same in value as $110\frac{1}{2}$ grains of gold. Similarly the second is the same in value as $108\frac{1}{2}$ grains of gold. $\therefore$ the ratio is $110\frac{1}{2}$ to $108\frac{1}{2}$, or 415 to 408.

19. The \$12 is 2% of the total com. $\therefore$ the total com. is \$600. $\therefore$ 1st com. was $\frac{1}{2}(\$600 + \$12)$, or \$306. $\therefore$ value of goods = $\$306 \times \frac{100}{95} = \15300 .

20. The diff., \$1.9968, is the int. for 1 year on the second year's int., that is, on \$49.92. $\therefore$ the rate is 4%.

21. Page 202.

22. The diagonals bisect each other at right angles. $\therefore$ the area is $\frac{1}{2}$ of the prod. of the diagonals.

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23. Rent = \$216. Premium = \$19. $\therefore$ net inc. = \$216 - \$66 = \$150, which is $6\frac{2}{3}\%$ of value.

24. 1 cu. ft. of water weighs $1000 \times \frac{437.5}{480}$ oz. Troy.
 $1 \text{ cu. m.} = \left(\frac{5280}{1700}\right)^3 \text{ cu. ft.} \therefore 1000 \text{ kilo.} = 1000 \times \frac{437.5}{480} \times \left(\frac{5280}{1700}\right)^3 \text{ oz. Troy.}$