

22. If from a piece of tin, in the form of a sector of a circle, whose radius is 30 inches, and the length of its arc 36 inches, be cut another sector whose radius is 20 inches; and if then the remaining frustum be rolled up so as to form the frustum of a cone; it is required to find its content, supposing that one-eighth of an inch to be allowed off its slant height for the bottom, and the same allowance of the circumference, of both top and bottom, for what the sides fold over each other, in order to their being soldered together?

Ans. 685·3263 cubic inches.

23. Three men bought a grinding-stone of 40 inches diameter, which cost 20s., of which sum the first man paid 9s., the second 6s., and the third 5s., how much of the stone must each man grind down, proportionably to the money he paid?

Ans. The first man must grind down 5·167603 inches of the radius; the second 4·832397 inches, and the third 10 inches.

24. There is a frustum of a cone, whose solid content is 20 feet, and its length 12 feet; the greater diameter is to the less as 5 to 2; what are the diameters?

Ans. $\left\{ \begin{array}{l} 2\cdot02012 \text{ feet.} \\ \cdot80804 \text{ feet.} \end{array} \right.$

25. A farmer borrowed of his neighbour part of a hayrick, which measured 6 feet in length, breadth, and thickness; at the next hay-time he paid back two equal cubical pieces, each side of which was 4 feet. Has the debt been discharged?

Ans. No; 88 cubic feet are due.

26. There is a bowl in form of the segment of an oblong spheroid, whose axes are to each other in the proportion of 3 to 4, the depth of the bowl one-fourth of the whole transverse axis, and the diameter of its top 20 inches; it is required to determine what number of glasses a company of 10 persons would have in the contents of it, when filled, using a conical glass, whose depth is 2 inches, and the diameter of its top an inch and a half.

Ans. 114·0444976 glasses each.

27. If a cubical foot of brass were to be drawn into wire

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