

MENSURATION.

THIRD DIVISION.

		Values.
1.	What is the solidity of a prism, whose base is an equilateral triangle, each side being 4 feet, and height 10 feet ?.....	20
2.	How many cubic yards are in an upright cone, the circumference of the base being 70 feet, and the slant height 30 feet ?	20
3.	What is the solid content of the earth, supposing the diameter to be 7957 $\frac{1}{2}$ miles ?	20
4.	In a naked floor the girder is 1 foot 2 inches deep, 1 foot broad, and 22 feet long ; there are 9 bridgings, the scantling of each (viz. : breadth and depth) being 3 inches by 6 inches, and length 22 feet ; 9 binding joists, the length of each being 10 feet, and scantlings 8 inches by 4 inches ; the ceiling joists are 25 in number, each 7 feet long, and their scantlings 4 inches by 3 inches. What is the solidity of the whole ?....	20
5.	How many rods of standard brick work are in a wall whose length is 57 feet 3 inches, and height 24 feet 6 inches, the wall being 2 $\frac{1}{2}$ bricks thick ?	20
		100

ALGEBRA.

THIRD DIVISION.

1.	Find the value of $\sqrt{bc} + 3\sqrt{acd} - 4\sqrt{b^2d} + \sqrt{c^2d^3}$, when $a=25$, $b=9$, $c=4$, and $d=1$	15
2.	Reduce to its simplest form $a^2 - (b^2 - c^2) - [b^2 - (c^2 - a^2)] + c^2 - (b^2 - a^2)$	15
3.	Resolve into elementary factors $81x^4 - 1$, $x^6 - 64$, $x^4 - 2bx^3 + b^2x^2$, $x^6 - 2a^2x^4 + a^4x^2$	20
4.	Find the value of x in the equation $\frac{1}{7}(4x-21) + 7\frac{5}{6} + \frac{7}{3}(x-4) = x + 3\frac{3}{4} - \frac{1}{8}(9-7x) + \frac{1}{12}$	25
5.	A workman is engaged for 28 days, at 2s. 6d. a day, but, instead of receiving anything, is to pay 1s. a day on all days upon which he is idle ; he receives altogether £2 12s. 6d. ; for how many idle days did he play ?...	25
		100