

Roots of Numbers

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2. $9\frac{67}{121} = \frac{1156}{121}$. $\therefore$ square root $= \frac{34}{11} = 3\frac{1}{11}$.
3. $.027 = \frac{27}{1000}$. $\therefore$ square root $= \frac{5}{100} = \frac{1}{20}$.
8. $12825 = 3^3 \cdot 5^2 \cdot 19$. $\therefore$ multiplier $= 3 \times 19$.
9. $90250 = 2 \cdot 19^2 \cdot 5^3$. $\therefore$ multiplier $= 2^2 \times 19$.

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12. The units digit of its square must be the units digit of the square of 7, which is 9, &c.

15. The square root lies between 335 and 336.

16. The cost in cents $= \sqrt{5625} = 75$.

17. Number on each side $= \sqrt{567 \times 7} = 63$.

18. Pop. in 1901 = pop. in 1881 $\times \frac{148225}{138500}$. Since this fraction is the square of $\frac{1225}{1100}$ or $\frac{77}{77}$, $\therefore$ the pop. in 1901 = pop. in 1881 $\times \frac{77}{77}$.

19. The sum of the numbers in the first row $= (1 + 2 + \dots + 12)$. Let this $= N$. Sum of second row $= 2N$, of third $3N$, &c. $\therefore$ total $= (1 + 2 + \dots + 12) N$, &c.

20. If both numbers were the same as the smaller, the product would be $43923 \div 3 = 14641$. $\therefore$ the smaller $= \sqrt{14641} = 121$.

21. If both were equal to the smaller the product would be $1512 \times \frac{8}{7} = 1296$, &c.

22. If all were equal to the smallest, the product would be $3072 \div 6 = 512$. $\therefore$ the smallest = the cube root of 512 = 8.