45. Cu. ft. = 1728 cu. in. 3 ac. = (3 × 4840 × 9 × 144) sq. in. ∴ thickness = {1728 ÷ (3 × 4840 × 9 × 144)} in. = ·0000918 in.

46. If r is the radius, then $\frac{44}{7}r - 2r = 12$.

47. Side of square = $\sqrt{14}$ in. ∴ dia. = $\sqrt{14} \cdot \sqrt{2}$ in. = $\sqrt{28}$ in. = 5·291 in.

48. Area in sq. ft. = $3 \times 3\frac{5}{8} \times 5\frac{8}{9} = 64\frac{1}{24}$.

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49. Rad. of end in ft. = $\frac{7}{44} \times 22 = 3\frac{1}{2}$. ∴ area of end in sq. ft. = $\frac{22}{7} \times \frac{7}{2} \times \frac{7}{2}$. ∴ no. of cu. ft. = $\frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} \times 40 = 1540$. ∴ no. of cords = 1540 ÷ 128 = $12\frac{1}{32}$.

50. If side of cube be 1 in., when diminished it is $\frac{7}{8}$ in. ∴ new vol. = $(\frac{7}{8})^3$ cu. in. = $\frac{343}{512}$ cu. in. ∴ it is diminished by $\frac{169}{512}$ cu. in., &c.

51. Aisle + row of desks equal at least 44 in. Take one of the outside aisles of the width of the room. ∴ no. of rows = (22 × 12 ÷ 44) = 6.

52. Space = sq. + ¼ circle (rad. in.) + ¼ circle (rad. 6 in.) + ¼ circle (rad. 9 in.) + ¼ circle (rad. 12 in.) = &c. Peri. = ¼ circumference (rad. 3 in.) + &c.

53. No. of sq. ft. = (90 × 15 × 8 × 12 + 60 × 12 × 7 × 14) ÷ 144 = 1450, &c.

54. Dia. stick = $\frac{7}{22} \times 120$ in. = $38\frac{2}{11}$ in. If we deduct 10 in. for slabs and ¼ in. for cut, there will be left as many planks as cuts. ∴ every plank will require $2\frac{1}{4}$ in. ∴ no. planks equals the greatest whole no. in $(38\frac{2}{11} - 10\frac{1}{4}) \div 2\frac{1}{4}$ = 12.

55. Circumference = $\frac{44}{7} \times 12$ in. ∴ length of arc = $\frac{75}{360} \times \frac{44}{7} \times 12$ in. = $15\frac{5}{7}$ in.

56. Area of △s in sq. ch. = 40 × 23 + 40 × 29 = 2080 = 208 ac.