Mensuration

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1. Area of floor = 480 sq. ft.; of carpet = 357 sq. ft. Area painted = 123 sq. ft. = $13\frac{2}{3}$ sq. yd. $\therefore$ cost = \$1·64.

2. Diagonal = $\sqrt{216^2 + 195^2} = 291$ yd. $\therefore$ distance saved = $216 + 195 - 291 = 120$ yd.

3. Width in ft. = $\sqrt{40^2 - 24^2} + \sqrt{40^2 - 32^2} = 56$.

4. Area in acres = $160 \times 50 \div 160 = 50 = 500$ sq. ch.

5. No. = $480 \times 10800 \div 24$.

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6. The surface is a trapezium. See page 88.

7. Dimensions inside the road are 77 yd. and 48 yd. $\therefore$ area of road in sq. yd. = $85 \times 56 - 77 \times 48 = 1064$.

8. Reduce area to feet and take the square root.

9. No. = $(15 \times 9 \times 144) \div (27 \times 18) = 40$.

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11. Altitude bisects base. The altitude, $\frac{1}{2}$ base, and side form a right-angled triangle.

12. The ladder, in its new position, forms with the wall and ground a right-angled $\triangle$. Ladder 30 ft., wall to the top of ladder 24 ft. $\therefore$ dist. of the bottom of ladder from the foot of the wall = $\sqrt{30^2 - 24^2}$ ft. = 18 ft.

13. Draw the diagram.

14. Half the altitude in yd. = $4840 \div 90\frac{1}{3}$.

15. Area = 11·02 ac. = $11{\cdot}02 \times 4840$ yd. $\therefore$ the side = $\sqrt{11{\cdot}02 \times 4840}$ yd.

16. If length was the same as breadth cost would be £38 ÷ 5 = 152s. Area would then be $152 \div 9\frac{1}{2} = 16$ sq. yd. $\therefore$ width = 4 yd.