

distance of 5 feet asunder on the axle-tree, what was the circumference of the track described by the outer wheel?

Ans. 63 feet, nearly.

7. A cable which is 3 feet long, and 9 inches in compass, weighs 22 lbs.; what will a fathom of that cable weigh, which measures a foot about?

Ans. 78 $\frac{1}{2}$ lbs.

8. How many solid cubes, a side of which equals 4 inches, may be cut out of a large cube, whose side is 8 inches?

Ans. 8.

9. Determine the areas of an equilateral triangle, a square, a hexagon, the perimeter of each being 40 feet?

Ans. 76·980035 — 100 — 115·47.

10. A person wants a cylindrical vessel 3 feet deep, that shall contain twice as much as another cylindrical vessel whose diameter is 3 $\frac{1}{2}$ feet, and altitude 5 feet; find the diameter of the required vessel?

Ans. 6·39 feet.

11. Three persons having bought a conical sugar-loaf, wish to divide it into three equal parts by sections parallel to the base; it is required to find the altitude of each person's share, the altitude of the loaf being 20 inches?

Ans. Altitude of the upper part = 13·867, of the middle part = 3·604, of the lower part 2·528 inches.

12. There is a frustum of a pyramid, whose bases are regular octagons; each side of the greater base is 21 inches, and each side of the less base 9 inches, and its perpendicular length 15 feet, how many solid feet are contained in it?

Ans. 119·2 feet.

13. Requiring to find the height of a May-pole, I procured a staff 5 feet in length, and placing it in the sunshine, perpendicular to the horizon, I found its shadow to be 4·1 feet. Next I measured the shadow of the May-pole, which I found to be 65 feet; from this date the height of the pole is required?

Ans. 79·26 feet.

14. Given two sides of an obtuse-angled triangle, which are 20 and 40 poles; required the third side, that the triangle may contain just an acre of land?

Ans. 58·376 or 25·099.