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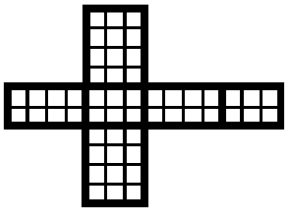
Lesson 9.1.3

9-28. See below.

a. Answers vary. One possible solution is shown below.



b. Multiple solutions are possible.

c. SA = 52 units^2; V = 24 units^3

9-29. See below.

b. 120 cm^2

c. 54 cm^3

d. Area of hexagon = $24\sqrt{3}$ in^2, SA = $48\sqrt{3} + 168 \approx 251.1$ in^2, V = $24\sqrt{3} \cdot 7 = 168\sqrt{3} \approx 291$ in.^{3}

9-30. SA = $80\pi + 50\pi = 130\pi \approx 408.41$ units^2; V = $200\pi \approx 628.32$ units^3

9-31. See below.

a. No. Volumes of individual pennies do not change, so total volume does not.

b. In each case the volume remains the same.

c. ≈ 628.32 units^3, it is the same as the volume of the cylinder in problem 9-30.

9-32. It does not hold enough water; V = $\pi(1)^2(3) = 3\pi \approx 9.42$ ft^3; $\frac{9.42 \text{ ft}^3}{1} \cdot \frac{1 \text{ gallon}}{0.1337 \text{ ft}^3} \approx 70.5$ gallons

9-33. 24 square units; As a midsegment, *DE* must be half the length of *BC*. If the ratio of lengths is 0.5, then the ratio of areas is $0.5^2 = 0.25$.

9-34. Base Area = 509.23 cm^2; Height = 5 cm; SA = 1438.44 cm^2