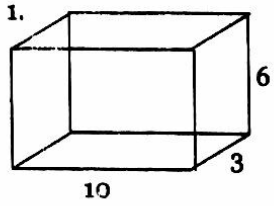
Geometry Q4 Per: ___ Name: Key

# Chapter 12 Review

**Calculate the listed values, then find the values for the Lateral Area, Total Area, and Volume. Show your work and state all equations used.**

**1.**




p = 26
h = 6
B = 30

**L.A. = 156**
L.A. = ph
= 26·6
= 156

**T.A. = 216**
T.A. = L.A. + 2B
= 156 + 2(30)
= 216

**V = 180**
V = Bh
= 30·6
= 180

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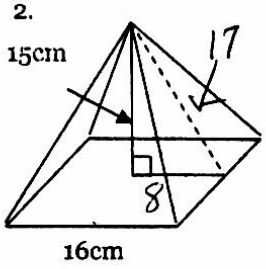
**2.**




p = 64
l = 17
h = 15
B = 256

**L.A. = 544**
L.A. = ½pl
= ½·64·17
= 544

**T.A. = 800**
T.A. = L.A. + B
= 544 + 256
= 800

**V = 1280** V = ⅓Bh
V = ⅓·256·15
= 1280

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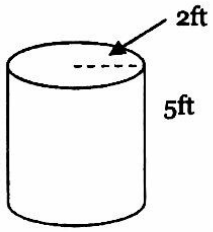
**3.**




r = 2
d = 4
h = 5
B = 4π

**L.A. = 20π**
L.A. = 2πrh
= 2π(2)(5)
= 20π

**T.A. = 28π**
T.A. = L.A. + 2B
= 20π + 2(4π)
= 28π

**V = 20π**
V = πr²h
= 4π·5
= 20π

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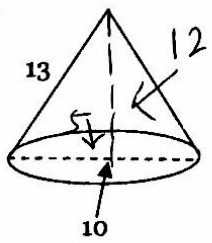
**4.**




r = 5
h = 12
ℓ = 13
B = 25π

**L.A. = 65π**
L.A. = πrℓ
= π(5)(13)
= 65π

**T.A. = 90π**
T.A. = L.A. + B
= 65π + 25π
= 90π

**V = 100π**
V = ⅓πr²h
= ⅓π(5)²(12)
= 100π

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**Organize your work. Solve for the missing length or value. *Diagrams are not required.*** ↙ Volume

**5. The total area of a cube is 216. Find the Lateral Area.**

T.A. = 6s²
6s² = 216
s² = 36
s = 6

L.A. = 4s²
= 4(6)²
= 4(36)
= 144

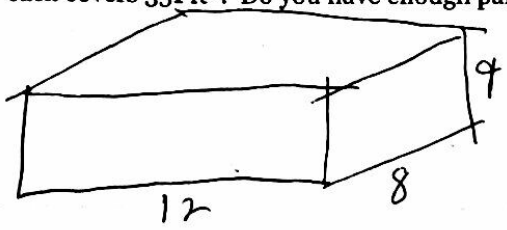
**6. A cylinder of height 3 holds 48π gallons of water. If it is transferred perfectly to a tank that is four times as tall, find the diameter of the new tank.**

$C_1$: V = πr²h
48π = πr²(3)
48π = 3πr²
r² = 16, r = 4

$C_2$: r = 4 × 4 = 16
d = 16 × 2 = 32

Draw and label diagrams to represent the given word problem. Solve, showing all work and any formulas used.

7. You are trying to paint all walls, ceiling and floor of a rectangular room that is 12 ft. by 8 ft. all the same color and with one coat. The distance from the floor to the ceiling is 9ft. You have 3 1-gallon buckets of paint that each covers 351 ft². Do you have enough paint to cover the entire room once?



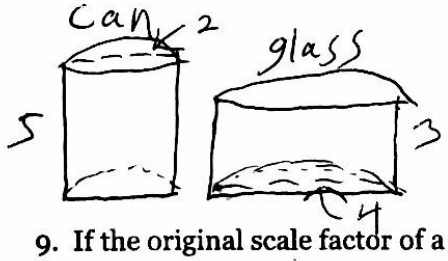

$h = 9$
$p = 40$
$B = 96$

$T.A. = ph + 2B$
$= (40)(9) + 2(96)$
$= 360 + 192$
$= \boxed{552 ft^2}$

3 buckets $= 351 \cdot 3$
$= 1053 ft^2$

Yes; You have enough paint

8. You want to pour a can of soda into a glass cup and the only one you have available is approximately 4 inches in diameter and 3 inches tall. If a can of soda is approximately 5 inches high and 2 inches in diameter, will all of your soda fit in the new cup (assuming you don't use ice)?




$V(can) = \pi(1)^2 \cdot 5 = \boxed{5\pi}$
$V(glass) = \pi(2)^2 \cdot 3 = \boxed{12\pi}$

Yes; the soda will fit in the cup

9. If the original scale factor of a solid is a:b, then name the ratios of:

a. Lengths = $a:b$ b. Areas = $a^2:b^2$ c. Volumes = $a^3:b^3$

10. Given the ratio of radii is 3:4, then,

Scale factor = 3 : 4

a. Ratio of volumes = 27 : 64
b. Ratio of lateral area = 9 : 16
c. Ratio of circumference = 3 : 4
d. Ratio of total area = 9 : 16

11. Given base areas are $8\pi$ and $18\pi$, then,

Scale factor = 2 : 3

a. Ratio of base edge = 2 : 3
b. Ratio of volume = 8 : 27
c. Ratio of lateral area = 4 : 9
d. Ratio of height = 2 : 3

The following solids are similar. Use the given information to solve for the missing value. *(3 pts. ea)*

12. The scale factor of solid A : solid B is 1:5.

If solid A has a slant height of 8, calculate the slant height of solid B.

$\frac{s.h.(A)}{s.h.(B)} = \frac{A}{B}$ ) $\frac{8}{x} = \frac{1}{5}$

$\boxed{x = 40}$

13. The scale factor of solid C : solid D is 5:2.

If solid C has a volume of 250, calculate the volume of solid D.

$\frac{V(c)}{V(b)} = \frac{C^3}{D^3}$ ) $\frac{250}{x} = \frac{125}{8}$

$\boxed{x = 16}$

14. The scale factor of solid E : solid F is 3:4.

If solid E has a base area of 27, calculate the base area of solid F.

$\frac{B(E)}{B(F)} = \frac{E^2}{F^2}$ ) $\frac{27}{x} = \frac{9}{16}$

$\boxed{x = 48}$

15. The scale factor of solid G : solid H is 2:1.

If solid G has a circumference of $16\pi$, calculate the circumference of solid H.

$\frac{cir(G)}{cir(H)} = \frac{G}{H}$ ) $\frac{16\pi}{x} = \frac{2}{1}$

$\boxed{x = 8\pi}$