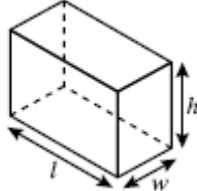
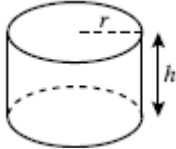



Geometry SOL Practice

Topic #12: Surface Area & Volume

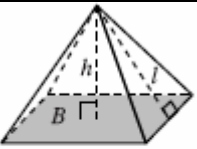
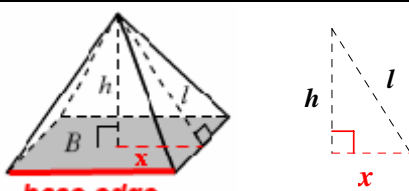
Notes

I. Using the given formulas (no missing information)

| Prism | Cylinder | Sphere |
|--|--|--|
|  <p> $V = lwh$ $S.A. = 2lw + 2lh + 2wh$ </p> |  <p> $V = \pi r^2 h$ $S.A. = 2\pi r(h + r)$ </p> |  <p> $V = \frac{4}{3}\pi r^3$ $S.A. = 4\pi r^2$ </p> |

II. Using the given formulas (some missing information)

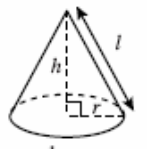
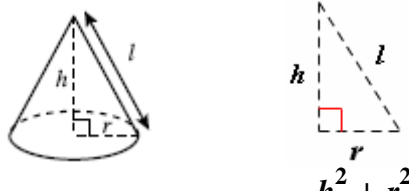
Pyramid:

| Given formula | Create a Right Triangle | Variables |
|---|--|--|
|  <p> $V = \frac{1}{3} Bh$ $L.A. = \frac{1}{2} lp$ $S.A. = L.A. + B$ </p> |  <p> $h^2 + x^2 = l^2$ </p> | <p> h = height l = slant height x = $\frac{1}{2}$ base edge B = Base Area = (base edge)² p = perimeter = 4 (base edge) </p> |

Example: Give the height = 10 and the base edge = 12, determine the surface area and volume of the pyramid.

| $h = 10$ Base edge = 12 $x = \frac{1}{2}(12) = 6$ $h^2 + x^2 = l^2$ $10^2 + 6^2 = l^2$ $l = 11.7$ $B = l^2 = 144$ $p = 4(12) = 48$ | Surface Area $S.A. = L.A. + B$ $= \frac{1}{2} lp + B$ $= \frac{1}{2}(11.7)(48) + 144$ $= 424.8$ | Volume $V = \frac{1}{3} Bh$ $= \frac{1}{3}(144)(10)$ $= 480$ |
|---|---|---|
|---|---|---|

Cone:

| Given formula | Create a Right Triangle | Variables |
|--|---|--|
|  <p> $V = \frac{1}{3}\pi r^2 h$ $L.A. = \pi rl$ $S.A. = \pi r(l + r)$ </p> |  <p> $h^2 + r^2 = l^2$ </p> | <p> h = height l = slant height r = radius </p> |