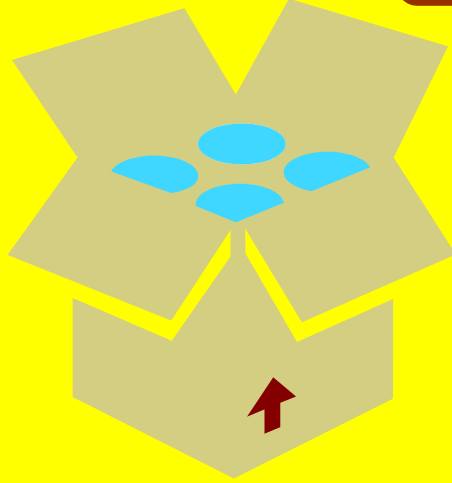
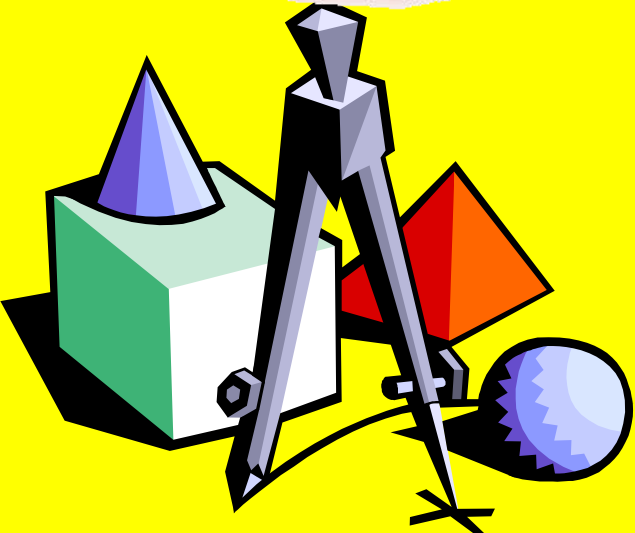
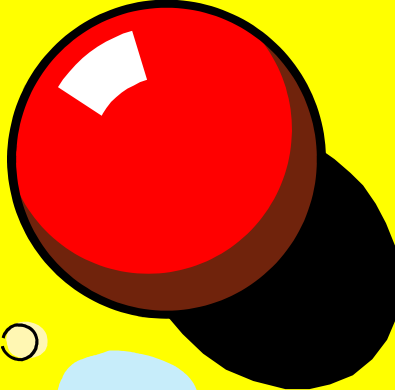
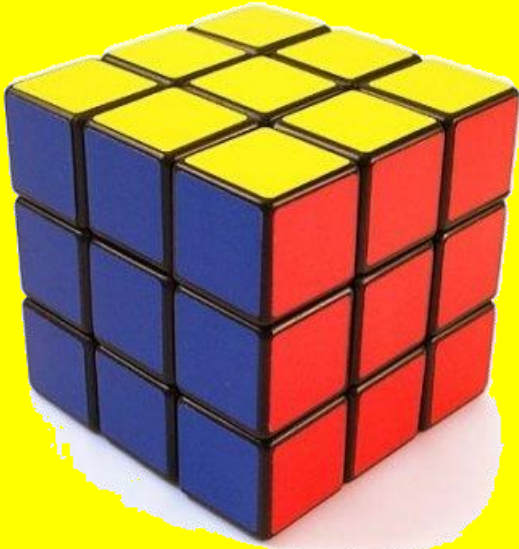
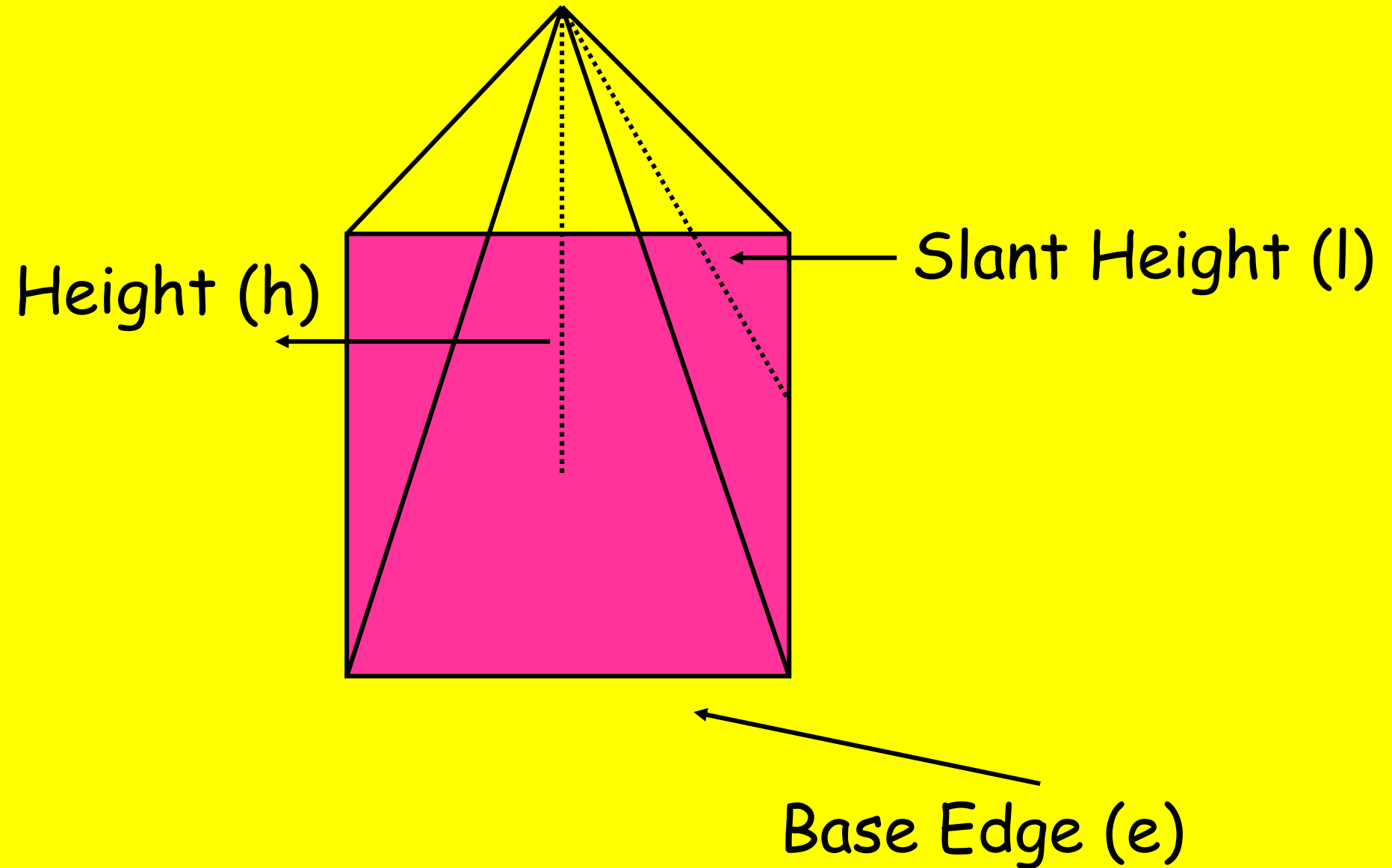


Total Area & Volume



A regular pyramid has a square base.



Formula for Volume

Volume = $\frac{1}{3}$ Area of the Base x Height

$$V = \frac{1}{3}Bh$$

P
y
r

Formula for Lateral Area

L.A. = $\frac{1}{2}$ Perimeter of Base x Slant Height

$$L.A. = \frac{1}{2}pl$$

a
m

Formula for Total Area

Total Area = Lateral Area + Area of Base

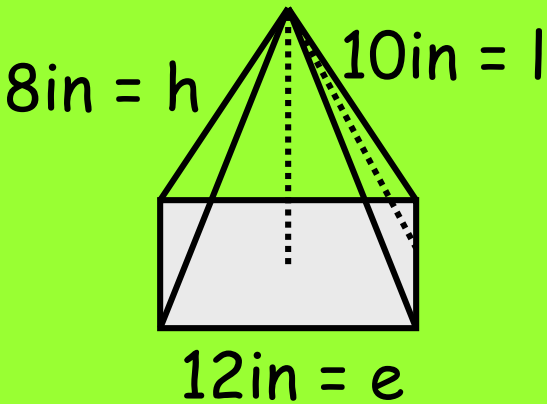
$$T.A. = L.A. + B$$

i
d

Therefore, to calculate Total Area and Volume of a Pyramid you must find four key pieces of information:

1. Area of the Base - e^2
2. Perimeter of the Base - $4e$
3. Height of the object - h
4. Slant Height - l

Example 1



Base Edge (e) - 12in

Height (h) - 8in

Slant Height (l) - 10in

Area of Base (B) - 144in^2

Perimeter of Base (p) - 48in

$$\text{L.A.} = \frac{1}{2}pl$$

$$\text{Lateral Area (L.A.)} = \frac{1}{2}(48)(10)$$
$$240\text{in}^2$$

$$\text{T.A.} = \text{L.A.} + B \quad \text{Total Area (T.A.)} -$$

$$240 + 144 = 384\text{in}^2$$

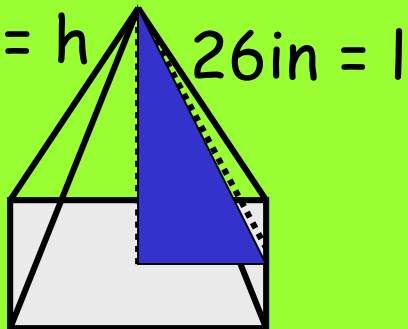
$$V = \frac{1}{3}Bh$$

$$\text{Volume (V)} = \frac{1}{3}(144)(8)$$

$$384\text{in}^3$$

Example 2

$$24\text{in} = h$$



$$20\text{in} = e$$

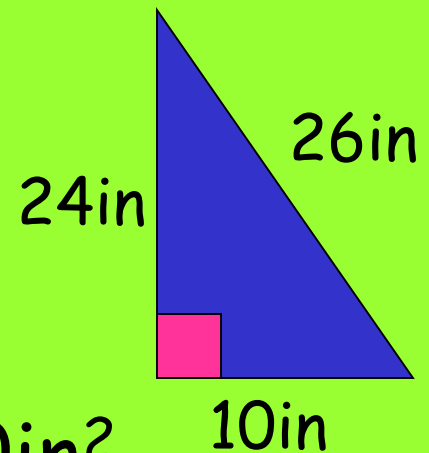
Base Edge (e) - 20in

Height (h) - 24in

Slant Height (l) - 26in

Area of Base (B) - 400in²

Perimeter of Base (p) - 80in



$$10\text{in}$$

$$\text{L.A.} = \frac{1}{2}pl$$

$$\text{Lateral Area (L.A.)} = \frac{1}{2}(80)(26)$$

$$1040\text{in}^2$$

$$\text{T.A.} = \text{L.A.} + B \quad \text{Total Area (T.A.)} =$$

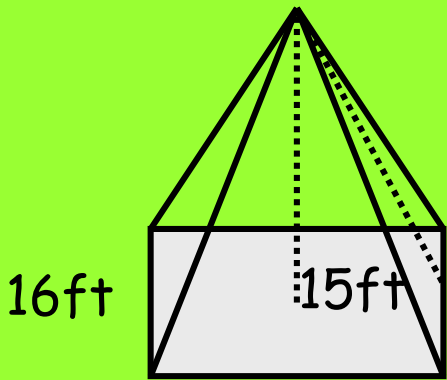
$$1040 + 400 = 1440\text{in}^2$$

$$V = \frac{1}{3}Bh$$

$$\text{Volume (V)} = \frac{1}{3}(400)(24)$$

$$3200\text{in}^3$$

Example 3



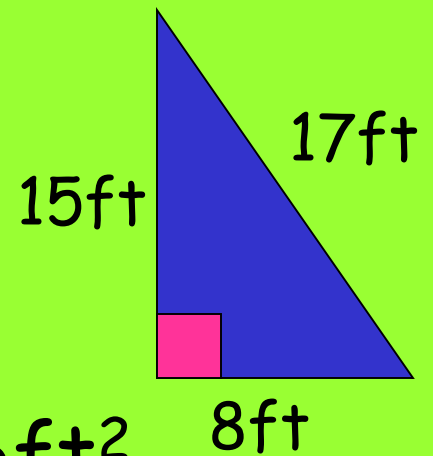
Base Edge (e) - 16ft

Height (h) - 15ft

Slant Height (l) - 17ft

Area of Base (B) - 256ft²

Perimeter of Base (p) - 64ft



$$L.A. = \frac{1}{2}pl$$

$$\text{Lateral Area (L.A.)} = \frac{1}{2}(64)(17)$$

$$544\text{ft}^2$$

$$T.A. = L.A. + B \quad \text{Total Area (T.A.)} =$$

$$544 + 256 = 800\text{ft}^2$$

$$V = \frac{1}{3}Bh$$

$$\text{Volume (V)} = \frac{1}{3}(256)(15)$$

$$1280\text{ft}^3$$