



P. 570 #15

a) $2B + Ph$
 $2(12) + 14(5)$
 $24 + 70$
 $94 u^2$



$B = 12$
 $h = 5$
 $P = 14$

b) $2B + Ph$
 $2(48) + 28(10)$
 $96 + 280$
 $376 u^2$




$B = 48$
 $P = 28$
 $h = 10$

c) $\frac{376}{94} = \frac{4}{1}$ New
old


d)

$2B + Ph$
 $2(54) + 30(11)$
 $108 + 330$
 $438 u^2$



$B = 54$
 $P = 30$
 $h = 11$

$2B + Ph$
 $2(216) + 60(22)$
 $432 + 1320$
 $1752 u^2$



$B = 216$
 $P = 60$
 $h = 22$

$\frac{\text{New}}{\text{old}} = \frac{1752}{438} = \frac{4}{1}$

P. 570 #21

a) $LA = 2\pi rh$
 if double r it
 doubles the LA


b) $SA = LA + 2B$
 B would be πr^2
 radius squared
 so Base is times
 4 while
 lateral area is
 only times 2

c) $SA = 2\pi rh + 2\pi r^2$
 Double r
 \downarrow
 $2\pi(2r)h + 2\pi(2r)^2$
 $4\pi rh + 2\pi(4r^2)$
 $\rightarrow 4\pi rh + 8\pi r^2$
 LA Doubled + Base part
 of formula
 is times 4.

P. 583 #16


Dimensions of
 Rectangular Prism trippled

Volume would be
 times 27

Ex) 

$V = Bh$
 $= 12(5)$
 $V = 60$

$B = 12$
 $h = 5$


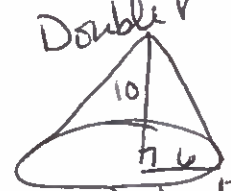
triple
 New \rightarrow 

New $V = 108(15)$
 $V = 1620$

$B = 108$
 $h = 15$



$\frac{1620}{60} = 27$

P. 588 #15
 Given cone $r=3$ ft
 $V = \frac{1}{3}\pi r^2 h$ $h=10$ ft
 $V = 30\pi$ ft³


 $V = 30\pi$ ft³
 Double r

 $\frac{1}{3}\pi(6^2)(10) = 120\pi$ ft³

 $\frac{120\pi}{30\pi} = 4$

 a) radius doubled
 Volume would be times 4 b/c radius is squared.

 b) height is doubled

 $V = 30\pi$ ft³
 double height

 $V = \frac{1}{3}\pi(3^2)(20)$
 New $V = 60\pi$

 Volume would be doubled because height only in formula power 1.
 $\frac{60\pi}{30\pi} = 2$

18 p. 588
 Pyramid
 $V = \frac{1}{3}Bh$
 if height halved
 $V = \frac{1}{3}B(\frac{1}{2}h)$
 $V = \frac{1}{6}Bh$ New Volume is half old.

P. 601
 ① Sphere
 radius $\times 10$
 $SA = 10^2 = 100$ times bigger
 $V = 10^3 = 1000$ times bigger

 $4\pi r^2$
 $\frac{4}{3}\pi r^3$

 ② Sq. Pyramid all dimensions $\times \frac{1}{4}$
 $SA = (\frac{1}{4})^2 = \frac{1}{16}$ of old SA
 $V = (\frac{1}{4})^3 = \frac{1}{64}$ of old V

 ③ cone r & h multiplied by 2.5
 $SA = (2.5)^2 = 6.25$ times SA
 $V = (2.5)^3 = 15.625$ times V

 ④ $\frac{9}{12} \neq \frac{18}{27}$
 Not similar

601 CONTINUED

P. 601 #8

VR $\frac{216}{343} = \frac{\sqrt[3]{216}}{\sqrt[3]{343}} = \frac{6}{7}$

#9 Area Ratio
AR $\frac{248}{550} = \frac{4}{9} \Rightarrow \sqrt{\frac{4}{9}} = \frac{2}{3}$ scale factor

VR $\left(\frac{2}{3}\right)^3 \frac{8}{27} = \frac{V}{810}$

Volume Ratio Cube $V = 240 \text{ in}^3$

#10 AR $\frac{52}{208} = \frac{1}{4} \Rightarrow \sqrt{\frac{1}{4}} = \frac{1}{2}$ SF

Scale Factor

VR $\left(\frac{1}{2}\right)^3 = \frac{1}{8} = \frac{X}{192}$

$24 \text{ ft} \times 3$

#11 VR Reduce cube

$\frac{27}{125} = \frac{\sqrt[3]{27}}{\sqrt[3]{125}}$

SF $\frac{3}{5} \rightarrow \frac{3^2}{5^2} = \frac{9}{25} = \frac{63}{X}$

AR $\frac{9}{25} = \frac{63}{X}$

175 in^2

#12 VR $\frac{2}{250} = \frac{1}{125} \Rightarrow \sqrt[3]{\frac{1}{125}}$

SF $\frac{1}{5} \left(\frac{1}{5}\right)^2 = \frac{1}{25} = \frac{13}{X}$

325 yd^2

#13 Jumbo box
double dimensions
Volume gets multiplied
by 8.

$8(750) = 6000 \text{ toothpicks}$

#15

yes because they only have one measurement to compare radii.

#16 $\frac{40}{30} = \frac{80}{60} = \frac{X}{45} = \frac{4}{3}$

$X = 60 \text{ m}$

#17 $r = 3 \text{ km } V = 125 \text{ cm}^3$

$r = 6.2 \text{ cm } V = ?$

Doubled $\times 2$

$V = (2)^3$

8 times bigger

#

$8(125) = 1000 \text{ cm}^3$

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