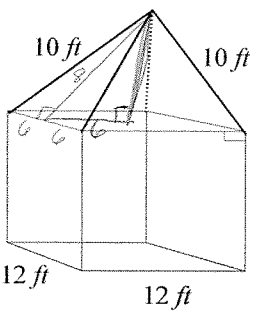
Name Answer Key Date _____ Period _____

Accelerated Geometry
Mixed Practice
Sections 12-1 to 12-3

I. Find the total area and volume of each solid.

**Please note: All prisms, cylinders and cones are right. All pyramids are regular pyramids.*

1.



$6^2 + x^2 = 8^2$
$36 + x^2 = 64$
$x^2 = 28$
$x = 2\sqrt{7}$

$A = 12^2$
$A = 144$

$P = 4(12)$
$P = 48$

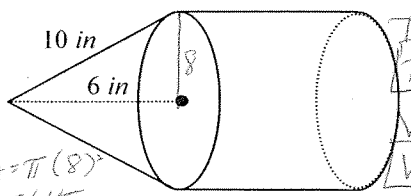
Cube
$V = Bh$
$V = (144)(12)$
$V = 1728\,ft^3$

Pyramid
$V = \frac{1}{3}Bh$
$V = \frac{1}{3}(144)(2\sqrt{7})$
$V = 96\sqrt{7}\,ft^3$

$TA = 720 + 192$
$TA = 912\,ft^2$
$V = (1728 + 96\sqrt{7})\,ft^3$

$TA = Ph + B$ ← only one base exposed!
$TA = (48)(12) + (144)$
$TA = 576 + 144$
$TA = 720\,ft^2$
$TA = \frac{1}{2}Pl$ ← no base exposed!
$TA = \frac{1}{2}(48)(8)$
$TA = 192\,ft^2$

2.



$A = \pi(8)^2$
$A = 64\pi$
$C = 2\pi(8) = 16\pi$

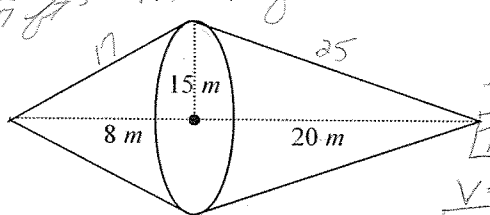
Cylinder
$V = Bh$
$V = (64\pi)(12)$
$V = 768\pi\,in^3$

Cone
$V = \frac{1}{3}Bh$
$V = \frac{1}{3}(64\pi)(6)$
$V = 128\pi\,in^3$

$TA = 256\pi + 80\pi$
$TA = 336\pi\,in^2$
$V = 768\pi + 128\pi$
$V = 896\pi\,in^3$

$TA = Ch + B$ ← only one base exposed
$TA = (16\pi)(12) + 64\pi$
$TA = 192\pi + 64\pi$
$TA = 256\pi\,in^2$
$TA = \frac{1}{2}Cl$ ← no base exposed
$TA = \pi(8)(10)$
$TA = 80\pi\,in^2$

3.



$A = \pi r^2$
$A = \pi(15)^2$
$A = 225\pi$

Cone #1
$V = \frac{1}{3}Bh$
$V = \frac{1}{3}(225\pi)(8)$
$V = 75\pi(8)$
$V = 600\pi\,m^3$

Cone #2
$V = \frac{1}{3}(225)(20)$
$V = 1500\pi\,m^3$

$TA = \pi rl$
$TA = \pi(15)(17)$
$TA = 255\pi\,m^2$

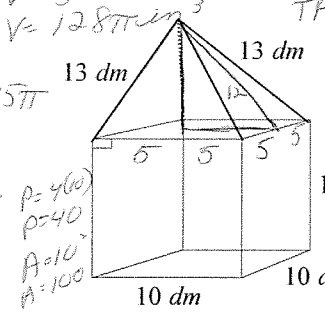
$TA = \pi(15)(25)$
$TA = 375\pi\,m^2$

$TA = 255\pi + 375\pi$
$TA = 630\pi\,m^2$

$V = 1500\pi + 600\pi$
$V = 2100\pi\,m^3$

No base exposed LA. ∴ use LA.

4.



$5^2 + x^2 = 12^2$
$25 + x^2 = 144$
$x^2 = 119$
$x = \sqrt{119}$

$P = 4(10)$
$P = 40$
$A = 10^2$
$A = 100$

Cube
$V = Bh$
$V = (100)(10)$
$V = 1000\,dm^3$

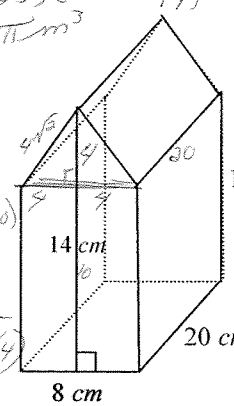
Pyramid
$V = \frac{1}{3}Bh$
$V = \frac{1}{3}(100)(\sqrt{119}) = \frac{100\sqrt{119}}{3}$

$TA = 500 + 240$
$TA = 740\,dm^2$
$V = 1000 + \frac{100\sqrt{119}}{3}$
$V = \frac{3000 + 100\sqrt{119}}{3}\,dm^3$

$TA = Ph + B$
$TA = (40)(10) + (100)$
$TA = 400 + 100$
$TA = 500\,dm^2$

$TA = \frac{1}{2}Pl$
$TA = \frac{1}{2}(40)(12)$
$TA = 20(12)$
$TA = 240\,dm^2$

5.



$A = 8 \cdot 20$
$A = 160$

$P = 2(8) + 2(20)$
$P = 16 + 40$
$P = 56$

$A = \frac{1}{2}(8)(4)$
$A = (4)(4)$
$A = 16$

$P = 4\sqrt{2} + 4\sqrt{2} + 8$
$P = 8\sqrt{2} + 8$

Rectangular Prism
$V = Bh$
$V = (160)(10)$
$V = 1600\,cm^3$

$TA = Ph + 2B$
$TA = (56)(10)$
$TA = 560\,cm^2$

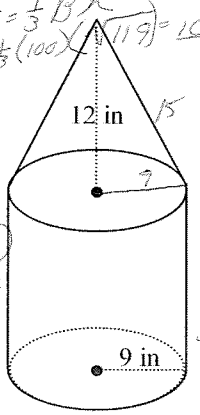
Triangular Prism
$V = Bh$
$V = (16)(20)$
$V = 320\,cm^3$

$TA = Ph + 2B$
$TA = (8\sqrt{2} + 8)(20) + 2(16)$
$TA = 160\sqrt{2} + 160 + 32$
$TA = (160\sqrt{2} + 192)\,cm^2$

$TA = (560 + 160\sqrt{2} + 192)$
$TA = (752 + 160\sqrt{2})\,cm^2$

$V = 1600 + 320$
$V = 1920\,cm^3$

6.



Cone
$V = \frac{1}{3}Bh$
$V = \frac{1}{3}(81\pi)(12)$
$V = 324\pi\,in^3$

Cylinder
$V = Bh$
$V = (81\pi)(15)$
$V = 1215\pi\,in^3$

$A = \pi r^2$
$A = \pi(9)^2$
$A = 81\pi$
$C = 2\pi r$

$TA = \pi rl$
$TA = \pi(9)(15)$
$TA = 135\pi\,in^2$

$TA = Ch + B$
$TA = (18\pi)(15) + 8$
$TA = 270\pi + 81\pi$
$TA = 351\pi\,in^2$

$TA = 135\pi + 351\pi$
$TA = 486\pi\,in^2$
$V = 324\pi + 1215\pi$
$V = 1539\pi\,in^3$