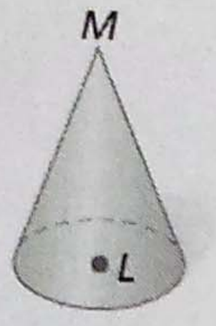
Geometry:
Chapter 10 (Part 1) Group Test Review

Name Key
Per _____ **Row #** _____

1) Classify each figure. Name the vertices, edges, and faces. If none, put "none."

a)



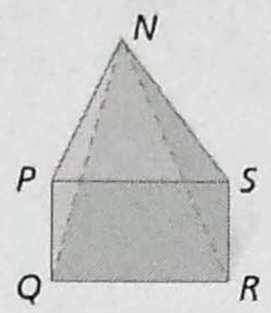
Name cone

Faces ⊙L

Edges (none)

Vertices M

b)



Name rectangular pyramid

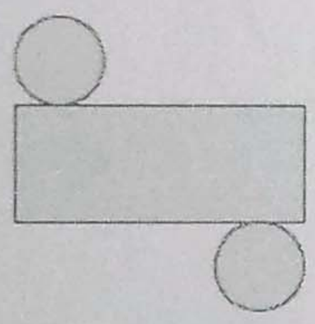
Faces PQRS, NPS, NSR, NRQ, NPQ

Edges NP, NS, NR, NQ, PS, SR, RQ, PQ

Vertices P, Q, R, S, N

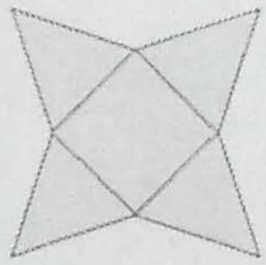
2) Name the 3-D figure that can be made from the given net.

a)



cylinder

b)

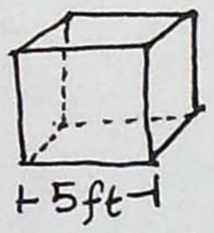


rectangular pyramid
OR
square pyramid

3) Find the LA and SA of a cube with a side length of 5 ft. Draw a diagram.

$LA = P \cdot h$
$= (5 \cdot 4)(5)$
$= 100 ft^2$

$SA = LA + 2B$
$= 100 + 2(5^2)$
$= 100 + 50$
$= 150 ft^2$



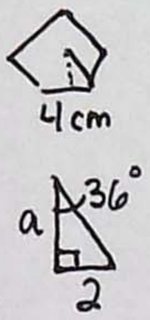
LA = $100 ft^2$

SA = $150 ft^2$

4) Find the LA and SA of a regular pentagonal pyramid with a slant height of 8 cm and a base edge length of 4 cm. Draw a diagram.

$LA = \frac{1}{2} Pl$
$= \frac{1}{2}(4.5)(8)$
$= 80 cm^2$

$SA = LA + B$
$= 80 + 27.53$
$= 107.53 cm^2$



$\frac{360}{5} = 72°$

$TAN\,36 = \frac{2}{a}$

$a = \frac{2}{TAN\,36}$

$B = \frac{1}{2}\left(\frac{2}{TAN\,36}\right)(20)$

$B \approx 27.53$

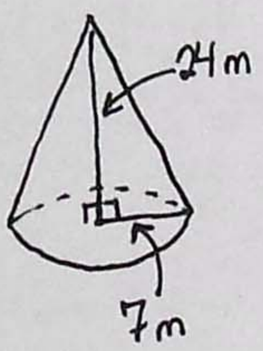
LA = $80 cm^2$

SA = $107.53 cm^2$

5) Find the LA and SA of a cone with a radius of 7 m and a height of 24 m. Leave in terms of π. Draw a diagram.

$LA = \pi r l$
$= \pi(7)(25)$
$= 175\pi m^2$

$SA = LA + B$
$= 175\pi + \pi(7^2)$
$= 224\pi m^2$



$7^2 + 24^2 = l^2$
$l^2 = 625$
$l = 25m$

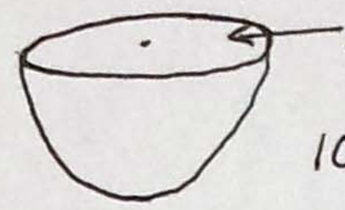
LA ≈ $549.78 m^2$

SA ≈ $703.72 m^2$

TIMES $\frac{1}{2}$ BECAUSE HEMISPHERE

6) Find the SA of a hemisphere that has a great circle with area of 100π m^2. Leave in terms of π. Draw a diagram.

$SA = 4\pi r^2\left(\frac{1}{2}\right)$
$= 4\pi(10^2)\left(\frac{1}{2}\right)$
$= 200\pi\ m^2$

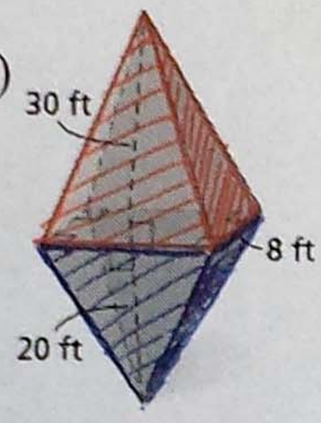


$100\pi = \pi r^2$
$100 = r^2$
$10 = r$

SA $\approx$ $628.32\ m^2$

7) Find the SA of the composite figures (~~leave your answer in terms of π and~~ round ~~radicals~~ to the hundredths place):

a)

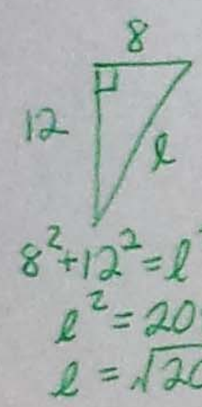


$LA_{pyramid} = \frac{1}{2}Pl$
$= \frac{1}{2}(8.4)(30)$
$= 480\ ft^2$

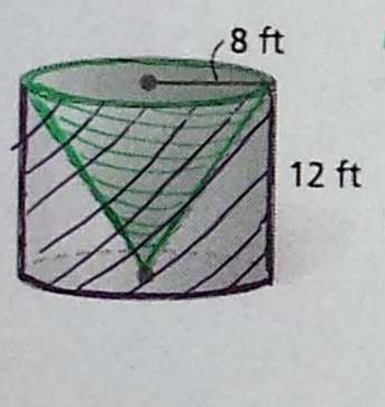
$LA_{pyramid} = \frac{1}{2}Pl$
$= \frac{1}{2}(8.4)(20)$
$= 320\ ft^2$

$SA_{total} = 480 + 320$
$= 800\ ft^2$

b)



$8^2 + 12^2 = \ell^2$
$\ell^2 = 208$
$\ell = \sqrt{208}$



$LA_{cone} = \pi r \ell$
$= \pi(8)(\sqrt{208})$
$\approx 362.47\ ft^2$

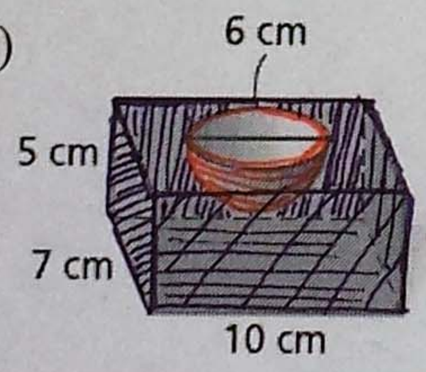
$\sqrt{208}$ could be written as $4\sqrt{13}$

$LA_{cylinder} = (2\pi r)(h) + \pi r^2$
$= (2\pi 8)(12) + \pi 8^2$
$= 192\pi + 64\pi$
$= 256\pi$
$\approx 804.25\ ft^2$

add only the bottom base

$SA_{total} = 8\sqrt{208}\,\pi + 256\pi$
$\approx 1166.72\ ft^2$

c)



$d = 6$ cm
$r = 3$ cm

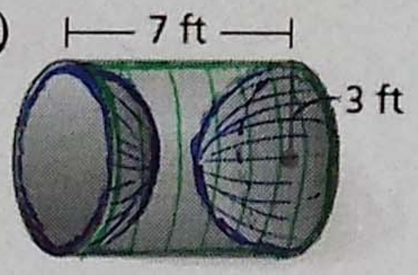
$SA_{hemisphere} = 4\pi r^2\left(\frac{1}{2}\right)$
$= 4\pi 3^2\left(\frac{1}{2}\right)$
$= 18\pi\ cm^2$

$SA_{prism} = Ph + 2B - \pi r^2$
$= (2 \cdot 7 + 2 \cdot 10)(5) + 2(7 \cdot 10) - \pi 3^2$
$= 170 + 140 - 9\pi$
$= 310 - 9\pi\ cm^2$

minus the top of the hemisphere

$SA_{total} = 18\pi + 310 - 9\pi$
$= 310 + 9\pi$
$\approx 338.27\ cm^2$

d)



$LA_{cylinder} = (2\pi r)(h)$
$= (2\pi 3)(7)$
$= 42\pi\ ft^2$

$SA_{sphere} = 4\pi r^2$
$= 4\pi(3^2)$
$= 36\pi\ ft^2$

two hemispheres = one sphere

$SA_{total} = 42\pi + 36\pi$
$= 78\pi$
$\approx 245.04\ ft^2$