Name_____ *Answers* _____ Date_____
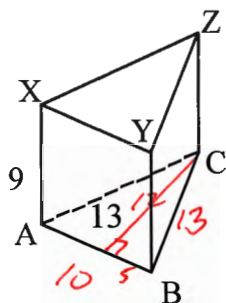
Chapter 11 & 12 – Final Review

Find the volume of the following. All measurements are given in centimeters.

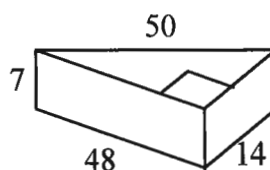1) In the right prism shown, AC = BC = 13, and AX = 9 and AB = 10.

$V = \frac{1}{2}bh \times H$

$= \frac{1}{2} \times 10 \times 12 \times 9$

$= 540 \, cm^3$

2)

50
7
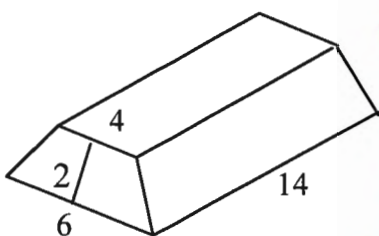48   14

$V = \frac{1}{2}bh \times H$

$= \frac{1}{2} \times 48 \times 14 \times 7$

$= 2352 \, cm^3$

3) Right Prism with trapezoidal bases

4
2
6
14
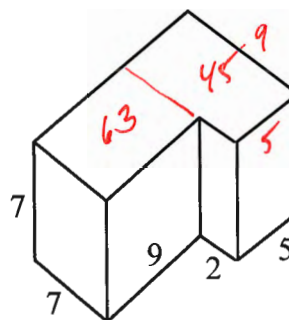
$V = \frac{1}{2}(b_1 + b_2)h \times H$

$= \frac{1}{2}(4+6) 2 \times 14$

$= 140 \, cm^3$

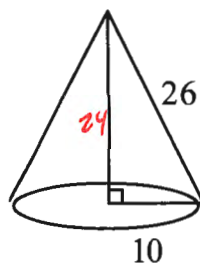4) Find the volume. All angles are right angles. Measurements are in meters.

9
45
63
5
7
9   2   5
7

$V = BH$

$= (63 + 45) 7$

$= 756 \, cm^3$

Solve each problem. Measurements are given in centimeters.

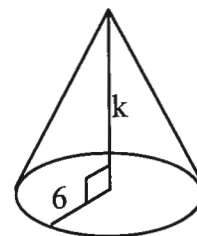5) Find the volume using 3.14 for π. The radius is 10 and slant height is 26.

26
24
10

$V = \frac{1}{3}\pi r^2 H$

$= \frac{1}{3} \times 3.14 \times 10^2 \times 24$

$= 2512 \, cm^3$

6) Find k if the volume of the cone below is 144 π cm³

k
6

$V = \frac{1}{3}\pi r^2 H$

$144\pi = \frac{1}{3} \times \pi \times 6^2 \times k$

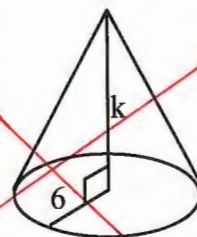$12 \, cm = k$

7) The following is a heptahedron.

a) How many edges are there? __15__

b) How many vertices are there? __10__

6) Find k if the volume of the cone below is 144π cm^3

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7) What is the height of a cylinder with a volume of 288π cm^3 if its is radius equal to 12 cm.?

$$V = \pi r^2 H$$

$$288\pi = \pi \times 12^2 \times H$$

$$\boxed{2 \overset{=}{cm} \ H}$$

8) A 10 cm tall cylindrical glass 6 cm in diameter is filled to one cm from the top with water. If a **golf ball** 4 cm in diameter is **dropped** into the glass, will the **water overflow**?
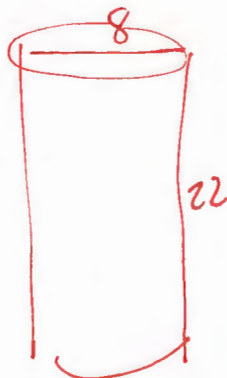

$$V = \pi r^2 H$$
$$= 9\pi$$

$$\bigcirc = \frac{4}{3}\pi r^3$$
$$= \frac{4}{3} \times \pi \times 2^3$$
$$= 10.\overline{6}\pi$$

$$\boxed{\text{Yes. Will overflow}}$$

9) A cylindrical can of tennis balls has an inside diameter of 8 cm. and a height of 22 cm. If the diameter of a tennis ball is 7 cm., how much of the **space**(nearest cubic centimeter) in a tennis ball can is **not occupied** by the three **balls**?

$$V = \pi r^2 H$$
$$= \pi \times 4^2 \times 22$$
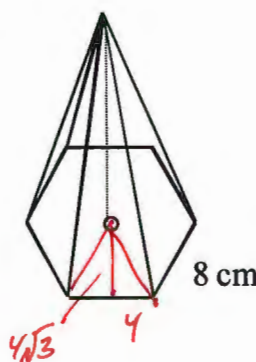$$= 352\pi$$

$$\bigcirc = \frac{4}{3}\pi r^3$$
$$= \frac{4}{3} \times \pi \times 3.5^3$$
$$= 57.2\pi$$

$$352\pi - (57.2\pi)3$$

$$\approx 567 \text{ cm}^3$$

10) Find the volume to the nearest cm^3 of a pyramid with height 14 cm with a regular hexagon for a base if each side of the hexagon has length 8 cm. Find volume to **nearest whole number**.
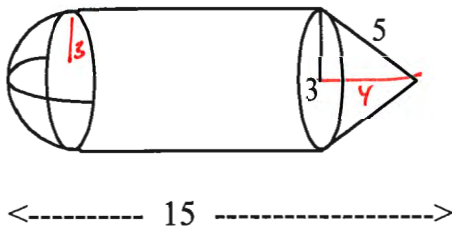

8 cm

$4\sqrt{3}$ 4

$$V = \frac{1}{3}\left(\frac{1}{2}san\right)H$$
$$= \frac{1}{3}\left(\frac{1}{2} \times 8 \times 4\sqrt{3} \times 6\right)14$$
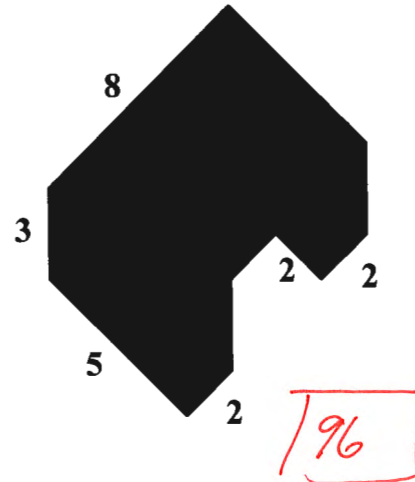
$$\boxed{\approx 776 \text{ cm}^3}$$

11) The rocket consists of a hemisphere (half a sphere), a cylinder, and a cone. Find the **volume** of the submarine in terms of π.
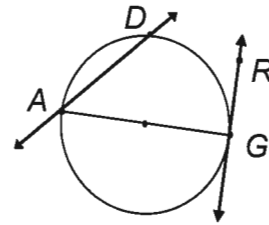

5

3

3 4

<-------- 15 -------->

V = Hemisphere + cylinder + Cone

$= \frac{1}{2}(\frac{4}{3}\pi r^3) + \pi r^2 H + \frac{1}{3}\pi r^2 H$

$= \frac{1}{2}(\frac{4}{3} \times \pi \times 3^3) + (\pi \times 3^2 \times 8) + \frac{1}{3}(\pi \times 3^2) 4$

$= 18\pi + 72\pi + 12 = \boxed{102\pi}$

12) Find the volume. All angles are right angles.

8

3

2   2

5

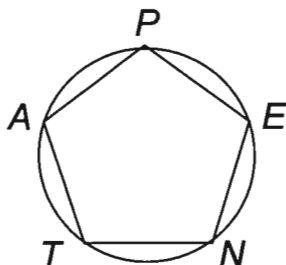2 $\boxed{96}$

13) Give an example from the figure of each of the following.

D

R

A

G

a. Tangent ___$\overleftrightarrow{RG}$___

b. Chord ___$\overline{AD}$___

c. Secant ___$\overleftrightarrow{AD}$___

d. Minor arc ___$\overarc{AD}$ or $\overarc{DG}$___

e. Semicircle ___$\overarc{ADG}$ or $\overarc{AG}$___

14) *PENTA* is a regular pentagon inscribed in a circle.

$m\overarc{PE}$ = ___72°___

P

A

E

T

N

15) $m\angle P$ = ___140 - 80°___

U

80°

140°

P   R

S   140°
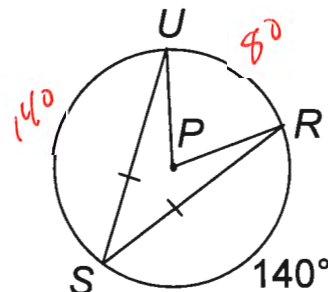
16) dAT and dAN are tangents. m□ATN = 72° a = __36°__

A
a
T
72 74
N

17) b = __82°__

164°

b

18) dPA □□ dRE c = __64__

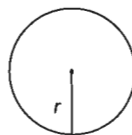79°
P   A

c

R   E

153°

19) d + e = __180°__

e

d
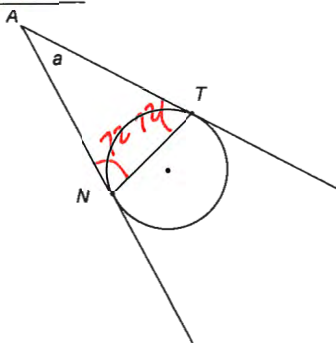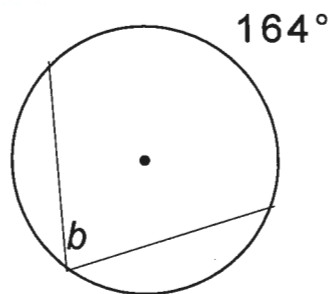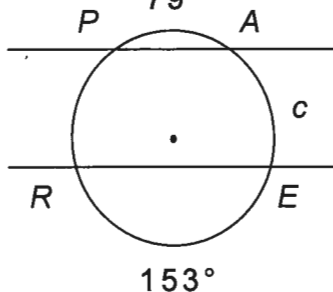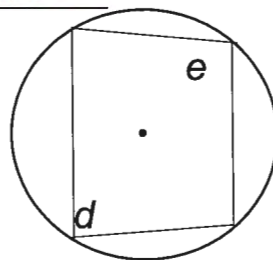
20) The circumference is 120π cm. r = __60 cm__

r
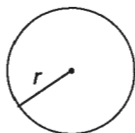
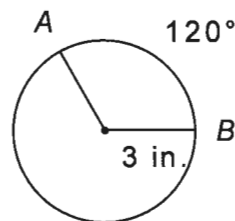21) Find the circumference.
r = 8.1 cm. Use 3.14 for π. c ≈ __50.9 cm__

r

$C = \pi d$
$= 3.14 \times 16.2$

22) If the diameter of the moon is 3475 km and an orbiting lunar station is circling 21 km above the lunar surface, find the distance traveled by the lunar station in one orbit.
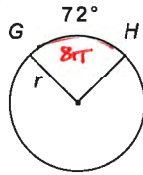
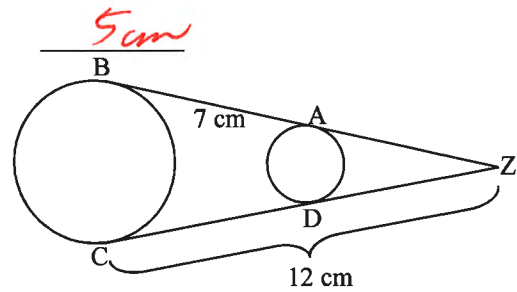Distance ≈ __11,043.4 km__

23) Arc length of arc AB = __2π in__

A   120°

B
3 in.

24) If the arc length of arc $GH = 8\pi$ cm.

$r = $ **20 cm**

72°
G   H
8π
r

25) Find the measure of segment AZ.

5 cm
B
7 cm   A
Z
D
C
12 cm

Find the missing angle measures.

26)
104°
$x°$ 76°
$y°$ **104°**
$z°$ **52°**

27)
$z°$ **60°**   80°
$y°$ **40°**
$x°$ **80°**

28)
100° $z°$ **35°**
$y°$ **50°** $x°$
100°
90°

29) Find $\angle 2$

2.
120°
40°
2

140°

30) Find $\angle 5$

5.
5
80°
170°
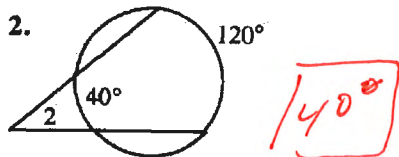
45°
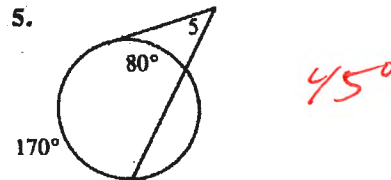
Find the missing variable.

31)
6   **8**
x 3
4

8

32)
4
8 − x x
3

~~(3/6)~~
2 and 6

33)
ω
8
x
4
12

$x = 6$

~~6√125~~