

Chapter 10 - 3-D (polyhedron/Vol/SA)

#1-4, Sketch each object and then find the **Volume** (Area of Base) H

1. A cylinder with a diameter of 14 cm and a height of 3 cm.



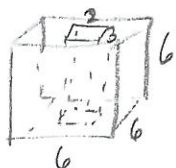
$$(\pi 7^2) 3 = 147\pi = 461.81 \text{ cm}^3$$

2. An equilateral triangular prism with a height of 20 cm and length of triangle's side is 4 cm.



$$\left(\frac{1}{2}(4)(3.46)\right) \cdot 20 = 138.56 \text{ cm}^3$$

3. A 6 x 6 x 6 ft. cube with a hole bored through. The hole is 2 x 3 and 6 ft. tall.



$$(6 \cdot 6) 6 - (2 \cdot 3) 6 = 216 - 36 = 180 \text{ ft}^3$$

4. A hemisphere attached to a cone. The radius of each is 5 in. The slant height of cone is 15 in.



$$\frac{\frac{4}{3}\pi 5^3}{2} + \frac{\pi 5^2 \cdot 14.14}{3} = 261.80 + 370.18 = 631.98 \text{ in}^3$$

#5-8, Find the **Surface Area** for each object.

5. A square pyramid with base perimeter of 20 cm and a lateral edge of 11 in.



add faces

$$25 + 4\left(\frac{1}{2} \cdot 5 \cdot 10.71\right) = 25 + 107.1 = 132.1 \text{ cm}^2$$

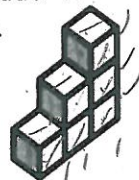


$$11^2 = 2.5^2 + x^2$$

6. A sphere with 18 cm. diameter.

$$4\pi(9)^2 = 324\pi \text{ or } 1017.88 \text{ cm}^2$$

7. This building is made with 1 inch cubes.



$$6 \cdot 6 + 3 + 3 + 6 = 24 \text{ in}^2$$

8. Mr. Fulton is thinking of starting up a tent-making business... He has two basic designs - the 'Pup' and the 'Tunnel'.

a. Which tent has more space inside? Why?

Tunnel Volume = 201.06

Pup Volume = 226.76 ft³

Volume larger on Pup tent

b. Which tent requires more fabric to be made? Why?

$$\text{SA Tunnel} = \frac{1}{2}(2\pi 4^2 + 2\pi 4 \cdot 8) + 8 \cdot 8 = 150.80 + 64 = 214.80$$

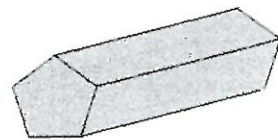
more surface area on Pup

$$\text{SA Pup} = 2\left(\frac{1}{2} \cdot 8 \cdot 6.93\right) + 3(8 \cdot 8) = 247.44 \text{ ft}^2$$

9. Count the number of faces, edges and vertices on object. Double check your numbers using Euler's Formula.

$$F = 7 \quad V = 10 \quad E = 15$$

$$7 + 10 = 15 + 2 \quad \checkmark$$



10. The dimensions of a pyramid are multiplied by 4. What will be the effect on...

a. The perimeter of the base of pyramid: x 4 p

b. The surface area x 16

c. the volume x 64

5
3
4
4

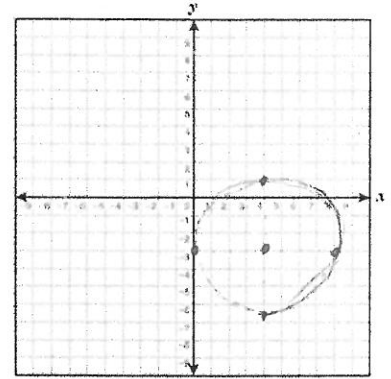
Chapter 11 - Circles

1. Write the equation of $\odot A$ with center (7, -3) and radius 5

$$(x-7)^2 + (y+3)^2 = 25$$

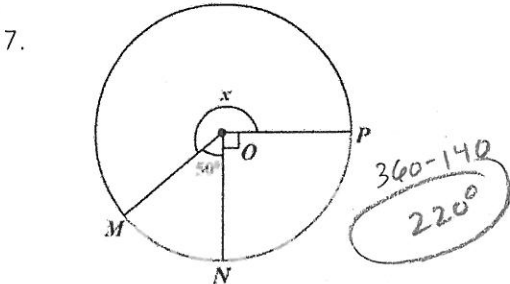
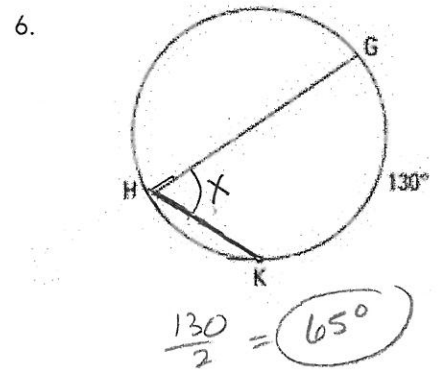
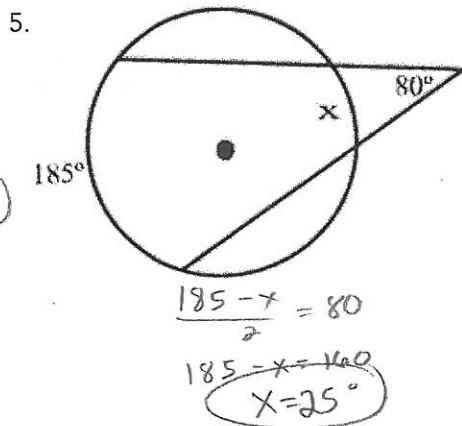
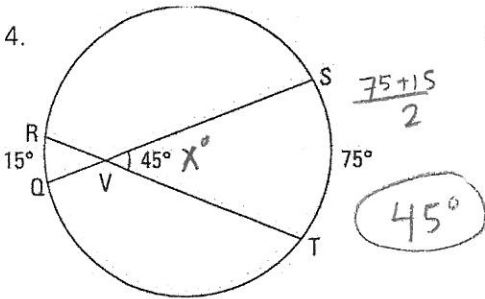
2. Write the equation of $\odot B$ that passes through (-2, -2) and that has a center B(-2, 1)

$$(x+2)^2 + (y-1)^2 = 9$$

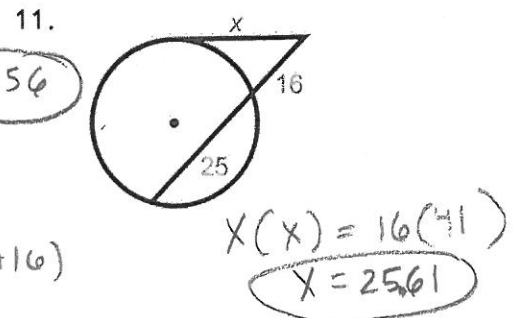
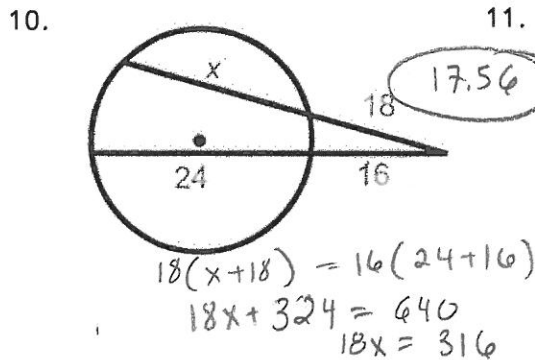
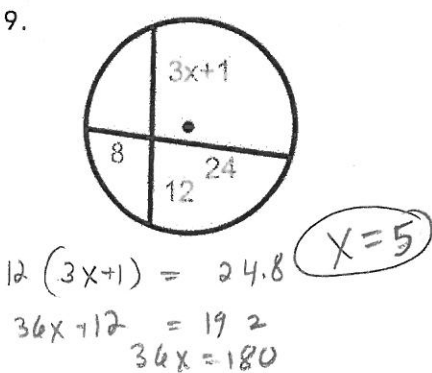


3. Graph the circle from the following equation: $(x-4)^2 + (y+3)^2 = 16$

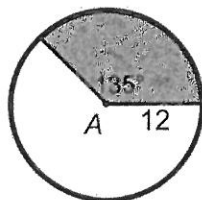
#4-7, Solve for the variable. (Angles)



#9-10, Solve for variables (Segments)



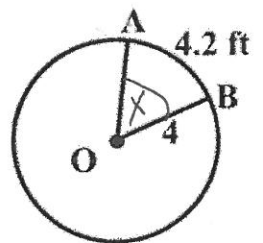
12. Find the area of sector



$$\frac{135}{360} (\pi 12^2)$$

$$169.65 u^2$$

13. Find $m\angle AOB$



$$\frac{x}{360} (2\pi 4) = 4.2$$

$$8\pi x = 1512$$

$$x = 60.16^\circ$$