Analytic Geometry

Name_____Period_____

Chapter 11 Study Guide #1

1. Find the area of a circle with a diameter of 30 inches.

$A=\pi r^2$

$=\pi(15)^2$

$=$ $225\pi in^2$

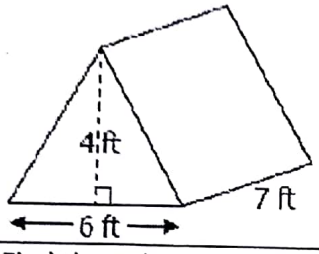
2. The circumference of a circle is 12π, what is the radius

$C=2\pi r$

$12\pi=2\pi r$

$r=6$

3. Find the volume.

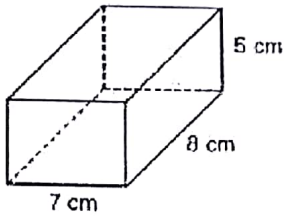


$V=Bh$ $B=\frac{1}{2}bh$

$=12(7)$ $=\frac{1}{2}(6)(4)$

$=84ft^3$ $=12$

4. Find the volume.

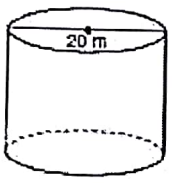


$V=Bh$ $B=lw$

$=56\cdot5$ $=7\ 8$

$=280cm^3$ $=56$

5. Find the volume

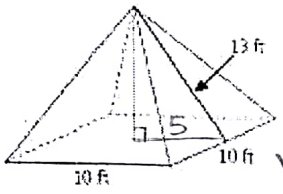


$V=\pi r^2h$

$=\pi(10)^2(15)$

$=1500\pi m^3$

6. Find the volume.



$5^2+h^2=13^2$

$25+h^2=169$

$h^2=144$

$h=12$

$V=\frac{1}{3}Bh$ $B=lw$

$=\frac{1}{3}(100)(12)$ $=10\cdot10$

$=400ft^3$ $=100$

7. Find the volume of a sphere whose surface area is $324\pi\ cm^2$.

$V=\frac{4}{3}\pi r^3$ $S=4\pi r^2$

$V=\frac{4}{3}\pi(9)^3$ $324\pi=4\pi r^2$

$=972\pi cm^3$ $81=r^2$

$r=9$

8. A regular rectangular pyramid has a base length of 8 cm and a width of 9 cm. The volume of the pyramid is $576\ cm^3$. Find the height.

$V=\frac{1}{3}Bh$ $B=lw$

$576=\frac{1}{3}(72)h$ $=8\cdot9=72$

$576=24h$

$h=24cm$

9. The volume of a cylinder is 794.3 cm^3. The height of the cylinder is 7 cm. Calculate the radius of the cylinder to the nearest tenth of a centimeter.

$V=\pi r^2h$

$\frac{794.3cm^3}{7\pi}=\frac{\pi r^2(7)}{7\pi}$

$\sqrt{36\cdot12}=\sqrt{r^2}$

$r=6.0\ cm$

10. Find the surface area of a sphere with a great circle that has an area of $49\pi\ mi^2$.

$S=4\pi r^2$ $A=\pi r^2$

$=4\pi(7)^2$ $49\pi=\pi r^2$

$=196\pi mi^2$ $r=7$

11. Find the radius of a sphere with a surface area of $1024\pi\ in^2$.

$S = 4\pi r^2$

$1024\pi = 4\pi r^2$

$r^2 = 256$

$r = 16\ in$

12. Find the radius of a sphere with a surface area of $196\pi\ in^2$.

$S = 4\pi r^2$

$196\pi = 4\pi r^2$

$49 = r^2$

$r = 7\ in$

13. The volume of a cylinder is $100\pi\ in^3$. The height of the cylinder is 6 in. Calculate the radius of the cylinder to the nearest tenth of a centimeter.

$V = \pi r^2 h$

$100\pi = \pi r^2(6)$

$16.67 = r^2$

$r = 4.1\ cm$

14. The volume of a cylinder is $5428.7\ in^3$. The height of the cylinder is 3 in. Calculate the radius of the cylinder to the nearest tenth of a centimeter.

$V = \pi r^2 h$

$5428.7 = \pi r^2(3)$

$576 = r^2$

$r = 24\ in$

15. Mrs. Claus is taking an art class. Her art project is to make a cone vase. If the vase has a volume of 157 in^3, and a diameter of 10 inches. What is the height to the nearest inch?

$V = 1/3\pi r^2 h$

$157 = 1/3\,\pi(5)^2 h$

$471 = \pi(25)h$

$h = 6\ in$

16. The base of a pyramid is a rectangle with a width of 8 cm and a length of 9 cm. Find the height of the pyramid if the volume is 264 cm^3.

$V = 1/3Bh$

$B = lw$

$= 8 \cdot 9 = 72$

$264 = 1/3(72)h$

$264 = 24h$

$h = 11\ cm$

17. The volume of a cylinder is $375\pi\ in^3$. If the height is 15 in, what is the length of the diameter?

$V = \pi r^2 h$

$375\pi = \pi r^2(15)$

$r^2 = 25$

$r = 5$

$d = 10\ in$

18. Find the surface area of a sphere with a great circle that has an area of $400\pi\ mi^2$.

$S = 4\pi r^2$

$= 4\pi(20)^2$

$= 1600\pi\ mi^2$

$A = \pi r^2$

$400\pi = \pi r^2$

$r = 20$

19. A rectangular prism measuring 6 in and 3 in along the base and 6 in tall.

$V = Bh$

$= 18 \cdot 6$

$= 108\ in^3$

$B = lw$

$= 6 \cdot 3$

$= 18$

20. A prism 8 in tall with a right triangle for a base with side lengths 3 in, 4 in, and 5 in.

$V = Bh$

$= 6 \cdot 8$

$= 48\ in^3$

$B = 1/2bh$

$= 1/2(3)(4)$

$= 6$

Analytic Geometry

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Chapter 11 Study Guide #2

1. Find the area and circumference of a circle with a diameter of 48 inches.

$A=\pi r^2$
$=\pi(24)^2$
$=576\pi in^2$

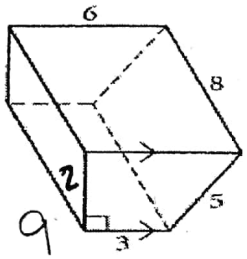
$C=2\pi(24)$
$=48\pi in$

2. The circumference of a circle is 30π cm, what is the area of the circle?

$C=2\pi r$
$30\pi=2\pi r$
$r=15$

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

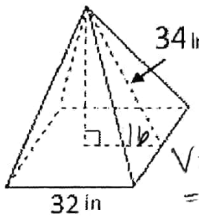
3. Find the volume.



$V=Bh$
$=9(8)=72$

$B=\frac{1}{2}(a+b)h$
$=\frac{1}{2}(3+6)(2)=9$

4. Find the volume of the square pyramid.

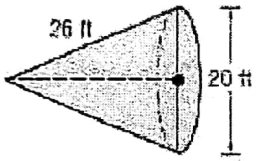


$h^2+16^2=34^2$
$h^2+256=1156$
$h^2=900$
$h=30$

$V=\frac{1}{3}Bh$
$=\frac{1}{3}(1024)(30)$
$=10240in^3$

$B=lw$
$=32\cdot32=1024$

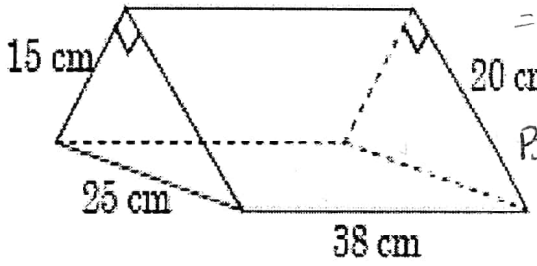
5. Find the volume.



$10^2+h^2=26^2$
$100+h^2=676$
$h^2=576$
$h=24$

$V=\frac{1}{3}\pi r^2h$
$=\frac{1}{3}\pi(10)^2(24)$
$=800\pi ft^3$

6. Find the volume.



$V=Bh$
$=150(38)$
$=5700cm^3$

$B=\frac{1}{2}bh$
$=\frac{1}{2}(15)(20)$
$=150$

7. Find the volume of a sphere whose surface area is $1{,}296\pi$ cm^2.

$V=\frac{4}{3}\pi r^3$
$=\frac{4}{3}\pi(18)^3$
$=7776\pi cm^3$

$S=4\pi r^2$
$1296\pi=4\pi r^2$
$324=r^2$
$r=18$

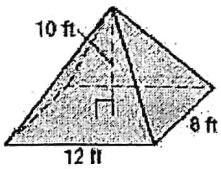
8. A regular pyramid has a right triangle as a base. The right triangle has a hypotenuse of 26 cm and a leg of 24 cm. The height of the pyramid is 30 cm. Find the volume of the pyramid.

$V=\frac{1}{3}Bh$
$=\frac{1}{3}(120)(30)$
$=1200cm^3$

$B=\frac{1}{2}bh$
$=\frac{1}{2}(24)(10)$
$=120$

$h^2+242=26^2$
$h^2+576=676$
$h=10$

9. Find the volume.



$V=\frac{1}{3}Bh$
$=\frac{1}{3}(96)(10)$
$=320ft^3$

$B=lw$
$=12\cdot8$
$=96$

10. Find the surface area of a sphere with a great circle that has an area of 289π mi^2.

$S=4\pi r^2$
$=4\pi(17)^2$
$=1156\pi mi^2$

$289\pi=\pi r^2$
$r=17$

11. Find the radius of a sphere with a surface area of 784π in^2.

$S = 4\pi r^2$

$784\pi = 4\pi r^2$

$196 = r^2$

$r = 14$ in

12. The volume of a cone is 180π yd^3. The height of the cone is 15 yd. Find the radius of the cone.

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

$180\pi = \frac{1}{3}\pi r^2 (15)$

$180 = 5r^2$

$36 = r^2$

$r = 6$ yd

13. The volume of a cylinder is 300π in^3. The height of the cylinder is 24 in. Calculate the radius of the cylinder to the nearest tenth of a centimeter.

$V = \pi r^2 h$

$300\pi = \pi r^2 (24)$

$r^2 = 12.5$

$r = 3.5$ cm

14. The volume of a cylinder is 6,450 in^3. The height of the cylinder is 120 in. Calculate the radius of the cylinder to the nearest tenth of a centimeter.

$V = \pi r^2 h$

$6450 = \pi r^2 (120)$

$r^2 = 9.2$

$r = 3$ cm

15. The base of a pyramid is a right triangle with leg lengths of 24 inches and 45 inches. The height of the pyramid is 21 inches. Find the volume of the pyramid.

$V = \frac{1}{3}Bh$ $\quad B = \frac{1}{2}bh$

$= \frac{1}{3}(540)(21)$ $\quad = \frac{1}{2}(24)(45)$

$= 3780$ in^3 $\quad = 540$

16. Find the volume of a rectangular prism with a length of 30 cm, width of 12 cm and a height of 24 cm.

$V = Bh$ $\quad B = lw$

$= 360(24)$ $\quad = 30 \cdot 12$

$= 8640$ cm^3 $\quad = 360$

17. Find the volume of a cylinder that has a radius of 14 cm and a height of 25 cm.

$V = \pi r^2 h$

$= \pi (14)^2 (25)$

$= 4900\pi$ cm^3

18. Find the volume of a cone that has a diameter of 14 yards and a slant height of 25 yards.

$V = \frac{1}{3}\pi (7)^2 (24)$

$= 392\pi$ yd^3

$h^2 + 49 = 625$

$h^2 = 576$

$h = 24$

19. A regular square pyramid has base edge 18 cm and volume 1,728 cm^3. Find the height.

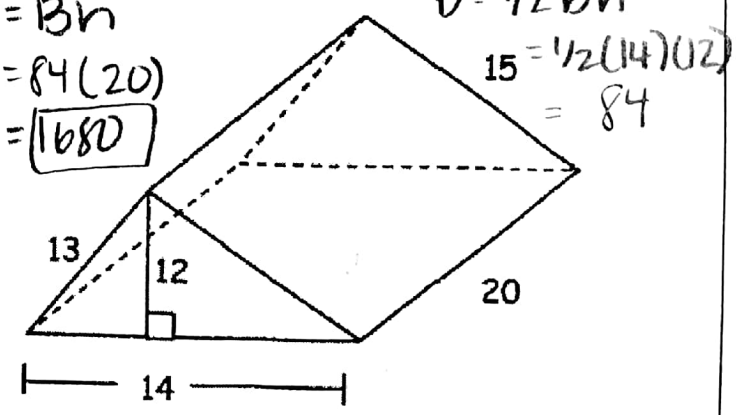
$V = \frac{1}{3}Bh$ $\quad B = lw$

$1728 = \frac{1}{3}(324)h$ $\quad = 18 \cdot 18$

$5184 = 324h$ $\quad = 324$

$h = 16$ cm

20. Find the volume.



$V = Bh$

$= 84(20)$

$= 1680$

$B = \frac{1}{2}bh$

$= \frac{1}{2}(14)(12)$

$= 84$