Secondary Math II
Unit 12 review

Name: Key

Period: _____

Write the standard form of the equation of each circle whose information is given.

1. Center: (1, -3)
   Radius: 4

$(x-1)^2+(y+3)^2=16$

2. Center: (3, 0)
   Radius: $\sqrt{3}$

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

3. How many distinct committees of 7 people can be formed if the people are drawn from a pool of 18 people?

$_{18}C_7 = 31824$

4. Your teacher is going to assign all 28 students in your class to a seating chart. In how many ways can your teacher arrange 7 students in the front row.

$_{28}P_7 = 5967561600$

5. Factor the following expression: $2x^2+4x$

$2x(x+2)$

6. Find the radius...

a. of a circle with the diameter of 12

$r=6$ units

b. of a circle with the circumference of 8π

$\frac{2\pi r}{2\pi} = \frac{8\pi}{2\pi}$ $r=4$ units

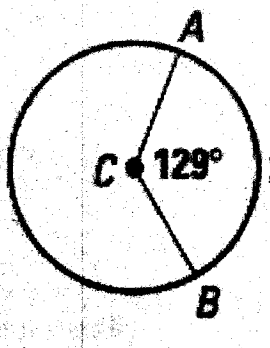
c. of a circle with an area of 25π

$\frac{\pi r^2}{\pi} = \frac{25\pi}{\pi}$

$r^2=25$

$r=5$ units

d.



$31.6 = \frac{129}{360} 2\pi r$

$31.6 = \frac{43}{60}\pi r$

$r \approx 14.04$ m

7. Convert degrees to radians

a. $45° = \frac{\pi}{4}$

$\frac{45\pi}{180}$

b. $225° = \frac{5\pi}{4}$

$\frac{225\pi}{180}$

c. $120° = \frac{2\pi}{3}$

$\frac{120\pi}{180}$

d. $420°$

$\frac{420\pi}{180} = \frac{7\pi}{3}$

$\pi = 180°$

8. Convert radians to degrees

a. $\frac{9\pi}{4} = \frac{9 \cdot 180°}{4}$

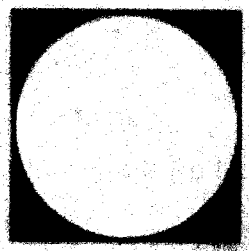
405°

b. $\frac{4\pi}{4} = \frac{4 \cdot 180°}{4} = 180°$

c. $\frac{\pi}{12}$ $\frac{180°}{12} = 15°$

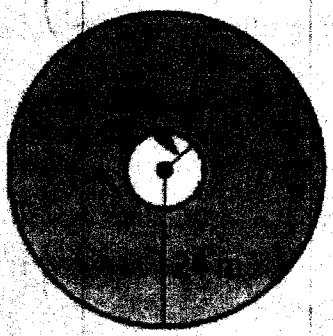
9. Find the area of the shaded region

a.



$(64 - 16\pi)\ ft^2$

b.



$\pi 24^2 - \pi 6^2$

$576\pi - 36\pi = 540\pi\ m^2$

10. Find the Arc Length of the circle. Arc Length $= \frac{\text{Ab}}{360°}(2\pi r)$

a. $\theta = 40°$, r = 12 in.

$\frac{40}{360} \cdot 2\pi \cdot 12 = \frac{24\pi}{9}$

$= \frac{8\pi}{3}$ in

b. $\theta = \frac{\pi}{3}$, r = 7 m.

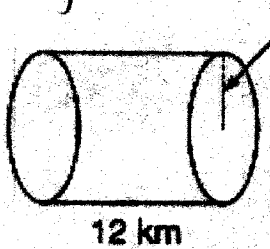
$\frac{7\pi}{3}$ m

c. $\theta = \frac{\pi}{6}$, r = 24 in.

$\frac{24\pi}{6} = 4\pi$ in

11. Find the volume of each figure.

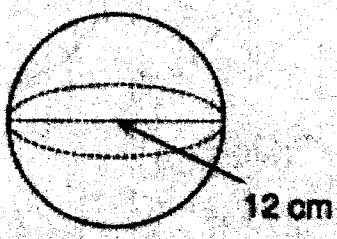
$V_{cylinder} = \pi r^2 \cdot h$



$V = \pi 5^2 \cdot 12$

$= 300\pi\ km^3$

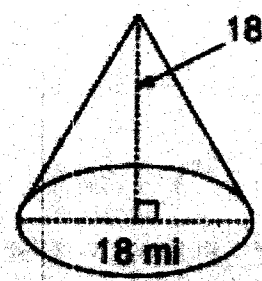
$V_{sphere} = \frac{4}{3}\pi r^3$



$V = \frac{4}{3}\pi 6^3$

$= 288\pi\ cm^3$

$V_{cone} = \frac{\pi r^2 \cdot h}{3}$

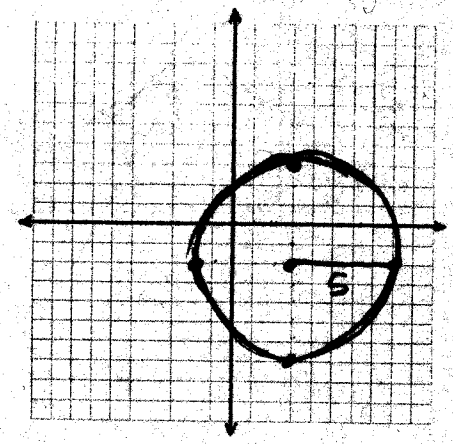


$V = \frac{\pi 9^2 \cdot 18}{3}$

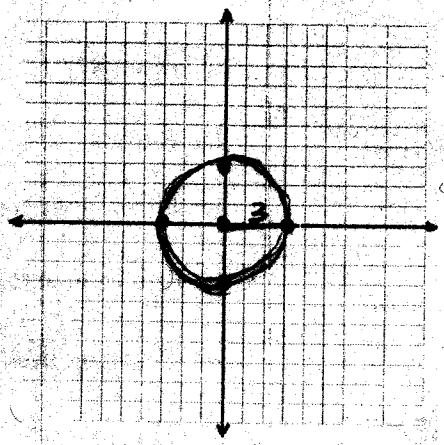
$= 486\pi\ mi^3$

12. Graph each given the standard form of the equation.

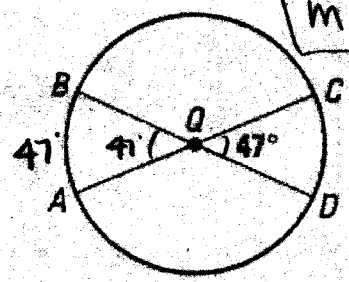
a. $(x-3)^2+(y+2)^2=25$ center: (3, -2) radius: 5



b. $x^2+y^2=9$ center: (0,0) radius: 3



13. Given that Q is the center of the circle, find the measure of $\overset{\frown}{AB}$.

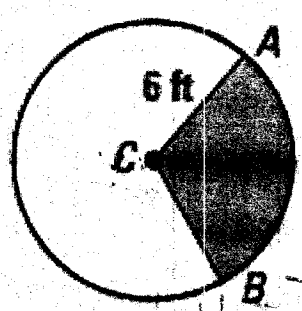


$m\overset{\frown}{AB} = 47°$

14. Use the diagram below to answer the following.

A. Find the area of the shaded region.

B. Find the length of $\overset{\frown}{AB}$.



(A) $\frac{110}{360}(\pi 6^2)$

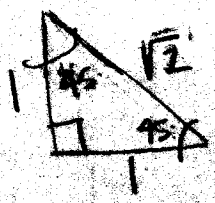
$\frac{11}{36}\cdot 36\pi$

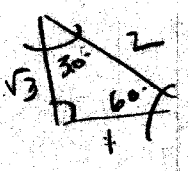
$= 11\pi \text{ ft}^2$

(B) $\frac{11}{36}(2\pi\cdot 6) = \frac{11}{3}\pi$ ft

15. Simplify: $\frac{6a^{-5}b^3}{2a^1b^2}$

$= \frac{3b}{a^6}$





16. Find the exact trig value

a. $\sin\frac{\pi}{4} = \sin 45°$ (o/h) $= \frac{1}{\sqrt{2}}$

$\frac{\sqrt{2}}{2}$ ← honors

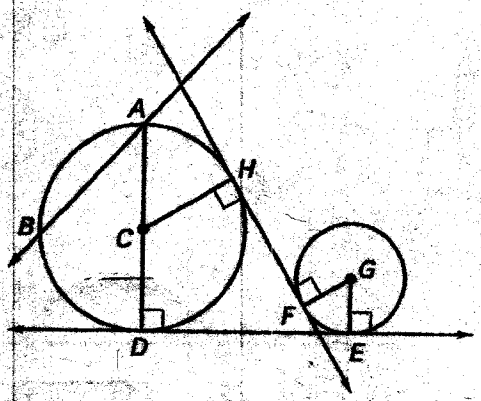
b. $\cos\frac{\pi}{3} = \cos 60°$ (a/h) $= \frac{1}{2}$

c. $\tan\frac{\pi}{6} = \tan 30°$ (opp/adj) $= \frac{\sqrt{3}}{3} = \frac{\sqrt{3}}{1}$

$= \sqrt{3}$

Match the notation with the term that best describes it.

E	17. D	A. Center
G	18. $\overleftrightarrow{FH}$	B. Chord
D	19. $\overline{CD}$	C. Diameter
B	20. $\overline{AB}$	D. Radius
A	21. C	E. Point of tangency
C	22. $\overline{AD}$	F. Common external tangent
H	23. $\overrightarrow{AB}$	G. Common internal tangent
F	24. $\overline{DE}$	H. Secant



HONORS ONLY

25. Complete the square to find the standard form of each equation. Label the center and radius.

a. $x^2+y^2-10x+6y+9=0$

$(x^2+10x+25)+(y^2+6y+9)=25$

$(x-5)^2+(y+3)^2=25$

center: $(5,-3)$

radius: 5

b. $x^2+y^2+18x+4y+4=0$

$(x^2+18x+81)+(y^2+4y+4)=81$

$(x+9)^2+(y+2)^2=81$

center: $(-9,-2)$

radius: 9