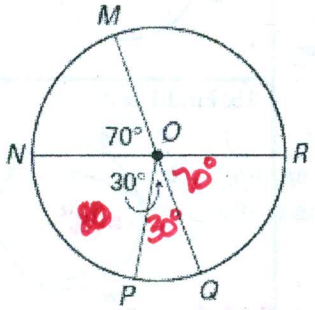
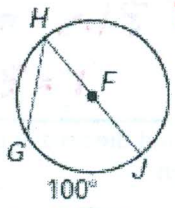
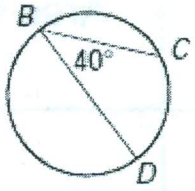
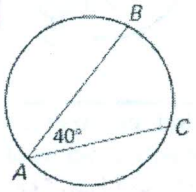
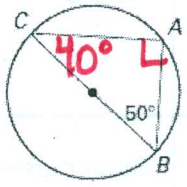
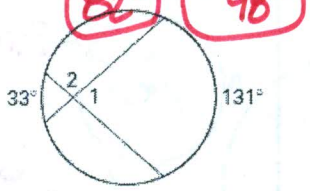
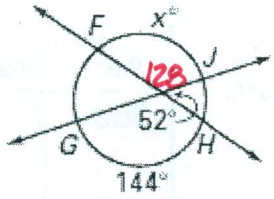
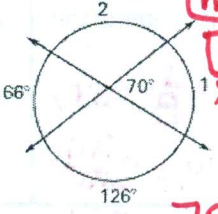
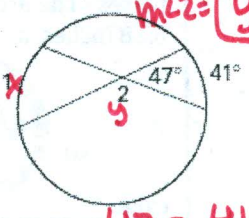
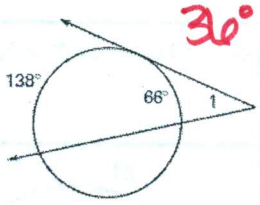
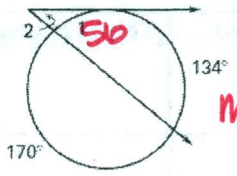
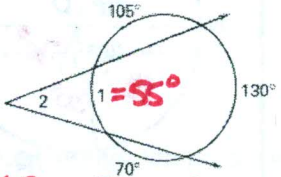
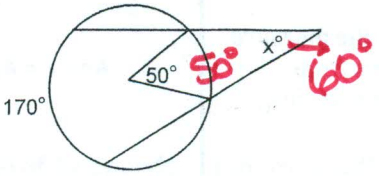
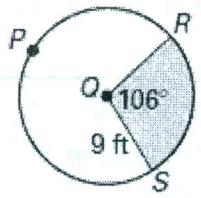
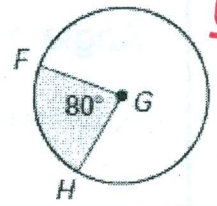
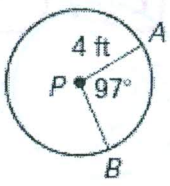
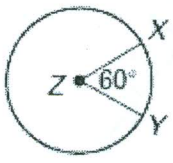
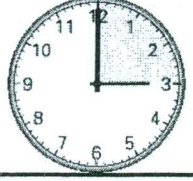
GPS Geometry **Exam Review Sheet #2** Key

What you need to know & be able to do	Things to remember		
Find the measure of arcs from central angles.	Angle = Arc		1. Find $m\widehat{MN}$ 70° 2. Find $m\widehat{QNR}$ 290° 3. Find $m\widehat{MR}$ 110° 4. Find $m\widehat{PRN}$ 280°
Find the measure of arcs and angles with inscribed angles	$\text{Angle} = \frac{\text{Arc}}{2}$	5. Find $m\angle GHJ$ 50° 	6. Find $m\widehat{CD}$ 80° 
		7. Find $m\widehat{BC}$ 80° 	8. Find $m\angle C$ 
Find the measure of arcs and angles if the angle is inside the circle	$\text{Angle} = \frac{\text{Arc} + \text{Arc}}{2}$	9. Find $m\angle 1$ and $m\angle 2$ 82° 98° 	10. Find the value of x.  $128 = \frac{x+144}{2}$ $x = 112°$
		11. Find 1 & 2 m∠1 = 74° m∠2 = 94°  $70 = \frac{66+x}{2}$ $x = 74$	12. Find 1 & 2 m∠2 = y = 133°  $47 = \frac{41+x}{2}$ m∠1 = x = 53

GPS Geometry

Exam Review Sheet #2

Find the measure of arcs and angles if the angle is outside the circle.	Angle = $\frac{\text{Big Arc} - \text{Small Arc}}{2}$	13. Find 1.  36°	14. Find 1 & 2.  arc 1 = 56° m∠2 = 39°
		15. Find 1 & 2.  m∠2 = 37.5°	16. Find the value of x. 
Find the area of circles	$\text{Area} = \pi r^2$	17. The area of a circle is 31.4 cm^2. What is the radius? $31.4 = \pi r^2$ $r = 3.16$ cm	18. Find the area of a circle with a diameter of 22 inches. $r = 11$ $\pi(11)^2 = 121\pi = 380.13\ in^2$
Find the area of sectors	$\frac{\text{Arc}}{360} = \frac{A_{\text{sector}}}{\pi r^2}$	19. Find the area of the shaded region  $\frac{\pi(9)^2(106)}{360}$ A = 74.93 ft^2	20. The area of the sector is 6.6 yd^2. Find the area of the whole circle.  $\frac{6.6}{A} = \frac{80}{360}$ $A = 29.7\ yd^2$
Find the circumference of circles	Circumference = $2\pi r$ Circumference = πd	21. Find the circumference of a circle with a radius of 8 m. $C = 2\pi(8) = 16\pi = 50.27$ m	22. The circumference of a circle is 25.12 ft. What is the radius? $\frac{25.12}{(2\pi)} = \frac{2\pi r}{(2\pi)}$ r = 4 ft
Find arc lengths	$\frac{\text{Arc}}{360} = \frac{\text{Arc Length}}{2\pi r}$	23. Find the arc length of $\overset{\frown}{AB}$  $\frac{2\pi(4)(97)}{360}$ 6.78 ft	24. The arc length of $\overset{\frown}{XY}$ is 3.44 cm. Find the radius.  $3.44 = \frac{2\pi r(60)}{360}$ $10.32 = \frac{3}{6}\pi r$ r = 3.28 cm
Word Problems	25. A birthday cake is sliced into 8 equal pieces. The arc length of one piece of cake is 6.28 inches, as shown. Find the diameter of the cake.  $6.28 = \frac{1}{8}(2\pi r)$ $50.24 = 2\pi r$ $\frac{\pi d}{\pi} = \frac{2\pi r}{\pi}$ 16 in = d	26. A wall clock has an area of 452.39 in^2. Find the diameter of the clock. Then find the area of the sector formed when the time is 3:00.  $452.39 = \pi r^2$ r = 12 in d = 24 in $A = \frac{1}{4}(452.39) = 113.1\ in^2$	

Extra Practice Problems:

1. Find the area and circumference of a circle with a diameter of 12 ft.

$r=6$

$C=2\pi(6)$ $A=\pi(6)^2$

$=12\pi$ ft. $=36\pi$ ft^2

2. Find the area and circumference of a circle with a diameter of 22π cm.

$r=11\pi$

$C=2\pi(11\pi)$ $A=\pi(22\pi)^2$

$=22\pi^2$ $A=15007.04$ cm^2

$=217.13$ cm

3. Find the area and circumference of a circle with radius 11.2m

$C=2\pi(11.2)$ $A=\pi(11.2)^2$

$C=70.37$ m $A=394.08$ m^2

4. Find the area and circumference of a circle with diameter of 9in.

$r=4.5$

$C=2\pi(4.5)$ $A=\pi(4.5)^2$

$=9\pi$ in $=63.62$ in^2

5. Given the area of a circle is 50.26 square meters, find the diameter.

$50.26=\pi r^2$

$r=4$

$d=8$ m

6. Given the circumference of a circle is 29π, find the radius.

$\frac{29\pi}{(2\pi)}=\frac{2\pi r}{(2\pi)}$ $r=\frac{29}{2}=14.5$

7. Given the area of a circle is 256π, find the radius.

$256\pi=\pi r^2$

$r=16$

8. Given the circumference of a circle is 88cm, find the diameter.

$88=\pi d$

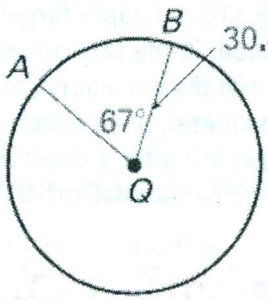
$d=28.01$ cm

9. Find the arc length of an arc if the arc measure is 12^0 and the radius is 16

$\frac{12(2\pi\cdot 16)}{360}$

$=1.88$

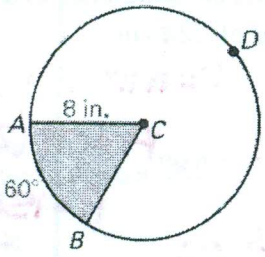
10. Find the arc length of AB



$\frac{67}{360}(2\pi\cdot 30.8)$

36.02 m

11. Find the arc length and area of the shaded region.

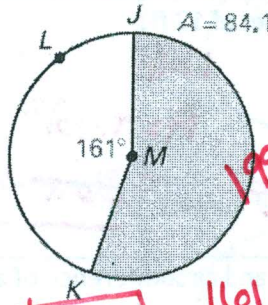


$A = \frac{60}{360}(\pi \cdot 8^2)$

$= 33.51 \text{ in}^2$

$AL = \frac{60}{360}(2\pi \cdot 8) = 8.38 \text{ in}$

12. Find the length of JK and the area of the circle. (JK is the minor arc)



$A = \pi r^2 \left(\frac{199}{360}\right)$

$r = 7$

$199°$

$A = 49\pi \text{ m}^2$

$AL = \frac{161}{360}(2\pi(7))$

$AL = 19.7 \text{ m}$

13. Given the arc length of an arc is 9cm and the central angle is 56^0 find the area and circumference of the circle.

$\frac{9}{C} = \frac{56}{360}$

$C = 57.86 \text{ cm} = 2\pi r$

$r = 9.2$

$A = \pi(9.2)^2 = 265.9 \text{ cm}^2$

14. The circumference of a circle is 128in. Find the arc length of a segment that covers 38^0 of the circle and find the circles area.

$\frac{128}{AL} = \frac{360}{38}$

$AL = 13.5 \text{ in}$

$128 = 2\pi r$

$r = 20.4$

$A = \pi(20.4)^2$

$A = 1307.4 \text{ in}^2$

15. What must the diameter of a circle be for area to be 298.648?

$298.648 = \pi r^2$

$r = 9.75$

$d = 19.5$

16. If the radius of a circle is 11 units long and a central angle is 1/5th of the circle, find the segment length and area of the sector formed.

$AL = \frac{1}{5}(2\pi \cdot 11) = 13.8$

$A = \frac{1}{5}(\pi \cdot 11^2) = 76.0$

17. You are shooting a round paper target with a naval cannon. If the cannonball is 14" in diameter and the circular paper target is 20" in diameter, what is the area of the paper target left after a direct bulls eye? (assuming the cannonball makes a perfect hole)

$r = 7$

$r = 10$

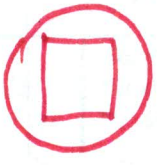
$\pi(10)^2 - \pi(7)^2$

$100\pi - 49\pi$

$51\pi \text{ in}^2$

18. You are cutting out a perfect square from a round piece of paper you found in art class. If the square will have side lengths of 5in, and the circle has a diameter of 9in, how much paper are you cutting off (in square inches)

$r = 4.5$

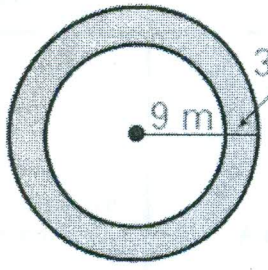


$\pi(4.5)^2 - 25$

$63.62 - 25$

38.62 in^2

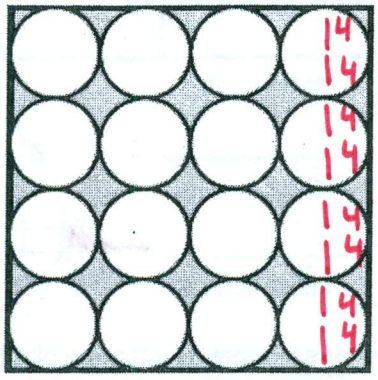
19. Find the area of the shaded region



$\pi(12.5)^2 - \pi(9)^2$

$236.4\ m^2$

20. Find the area of the shaded region



$(32)(32) - 16[\pi(4)^2]$

$1024 - 804.2$

$219.8\ cm^2$

Write the formulas for surface area and volume of a sphere:

SA = $4\pi r^2$

Volume = $\frac{4}{3}\pi r^3$

21. Find the surface area and volume of a sphere with radius 8cm.

$SA = 4\pi(8)^2 = 804.2\ cm^2$

$V = \frac{4}{3}\pi(8)^3 = 2144.7\ cm^3$

22. Find the surface area and volume of a sphere with diameter 42in.

$r = 21$

$SA = 4\pi(21)^2 = 5541.8\ in^2$

$V = \frac{4}{3}\pi(21)^3 = 38792.4\ in^3$

23. Find the surface area and volume of a sphere whose great circle circumference is 20π.

$= 2\pi r$

$10 = r$

$SA = 4\pi(10)^2 = 1256.6$

$V = \frac{4}{3}\pi(10)^3 = 4188.8$

24. Find the diameter of a sphere with surface 804.25 m^2.

$804.25 = 4\pi r^2$

$r = 8$

$d = 16\ m$

25. If the surface area of a sphere is 36π find the volume.

$36\pi = 4\pi r^2$

$9 = r^2$

$3 = r$

$V = \frac{4}{3}\pi(3)^3$

$= 113.1$

26. If the radius of a sphere doubles what happens to the surface area? Volume?

$(2)^2$ SA = 4 times larger

$(2)^3$ V = 8 times larger

Statistics Stuff to Know:

Mean Median Mode Range Lower Quartile

Upper Quartile Interquartile Range Population Standard Deviation Sample Standard Deviation

Normal Distribution Empirical Rule Histogram Dot Plot Box Plot Frequency Table

Random Sample Systematic Sample Self-Selected Sample Convenience Sample

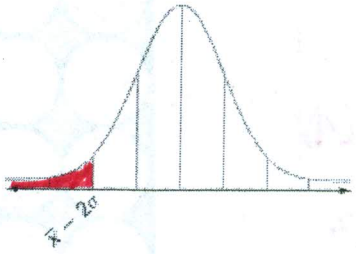
Biased vs. Unbiased Margin of Error Correlation Coefficient

Be sure to study your old tests and quizzes!

95% 1. According to the Empirical Rule, what percentage of normally distributed data falls within 2 standard deviations of the mean?

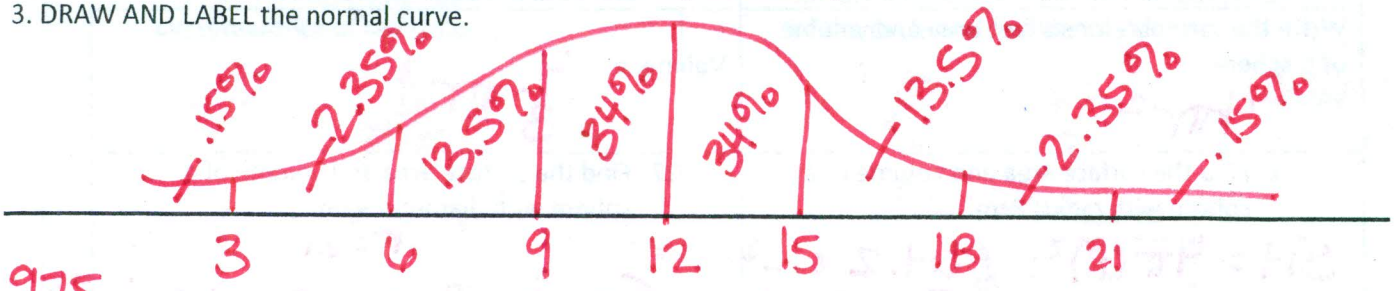
68-95-99.7

2.5% 2. In the following set of normally distributed data, what is the percent of the area under the normal curve represented by the shaded region?



A gardener calculates that each tomato plant he planted last season produced a mean of 12 pounds of tomatoes with a standard deviation of 3 pounds. (Assume the data is normally distributed)

3. DRAW AND LABEL the normal curve.

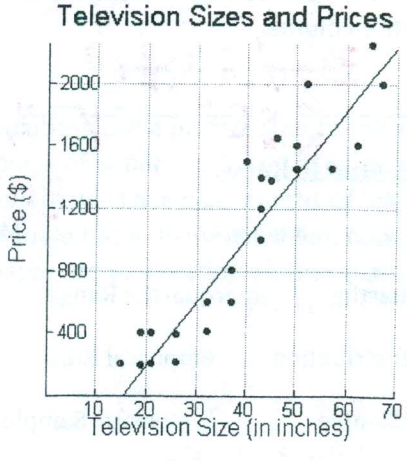


.975 4. What is the probability that a plant will produce at least 6 pounds of tomatoes?

.815 5. What is the probability that a plant will produce between 9 and 18 pounds?

D (6) Mr. Smith manages a store that sells televisions. He made a scatter plot to model the relationship between the television's screen size and the sales price.
Which best describes the correlation between the two variables.

a) r = -1.0
b) r = 0
c) r = -.22
d) r = .7



A normal distribution has a mean of 27 with a standard deviation of 5. Find the percentage and probability that a randomly selected x-value from the distribution is in the given interval. (hint: sketch the curve)

.025 7) $P(x \leq 17)$