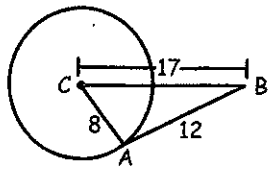
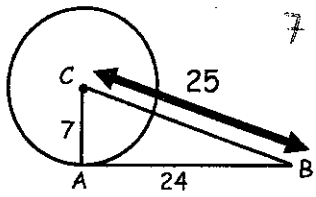
**Name:** KW **Date:** _____

**Is $\overrightarrow{AB}$ tangent to ⊙C? Explain your reasoning. Show work!**

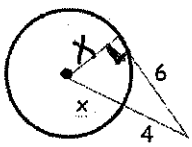
1. 


NO
$17^2 \neq 8^2 + 12^2$

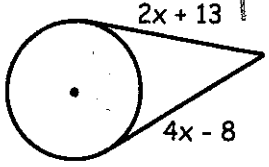
2. 


YES
$7^2 + 24^2 = 25^2$

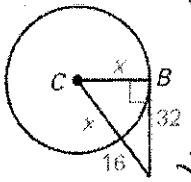
**For each ⊙C find the value of x. Assume that segments that appear to be tangent are tangent.**

3 

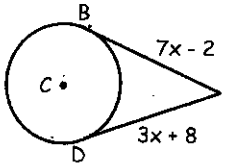

$6^2 + x^2 = (x+4)^2$
$36 + x^2 = x^2 + 8x + 16$
$36 = 8x + 16$
$20 = 8x$
$x = 5/2$

4 

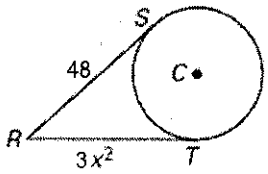

$2x + 13 = 4x - 8$
$2x = 21$
$x = \frac{21}{2}$

5. 

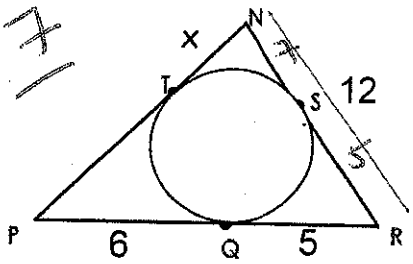

$x^2 + 32^2 = (x+16)^2$
$32^2 = 16(16+x)$
$32^2 = 256 + 16x$
$768 = 16x$
$x = 48$
$x = 24$

6. 


$7x - 2 = 3x + 8$
$4x = 10$
$x = \frac{5}{2}$

7. 


$3x^2 = 48$
$x^2 = 16$
$x = 4$

8. 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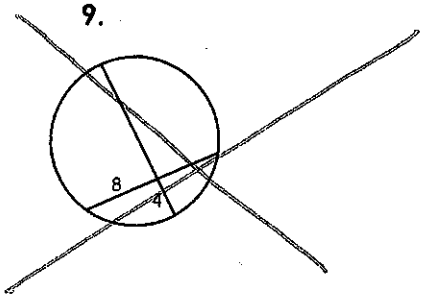
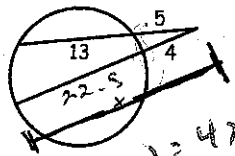
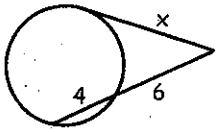
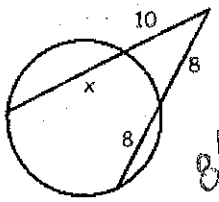
9. 


10. 

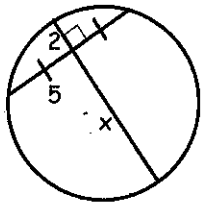

$5(18) = 4x$
$\frac{45}{2} = x$

11. 

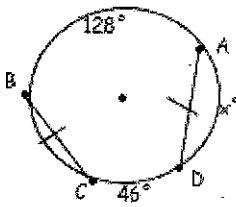

$x^2 = 6(10)$
$x^2 = 60$
$x = 2\sqrt{15}$

12. 


$8(16) = 16(10+x)$
$128 = 100 + 10x$
$28 = 10x$
$x = \frac{14}{5}$

13. 


$2x = 25$
$\frac{25}{2}$

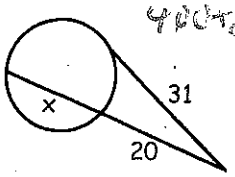
14. 


93

**15**

$20(20+x) = 31^2$

$400 + 20x = 961$

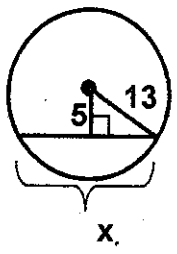



$20x = 561$

$x = \frac{561}{20}$

**16**

24



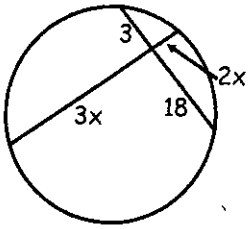

**17.**

$3(18) = 2x(3x)$

$54 = 6x^2$

$x^2 = 9$

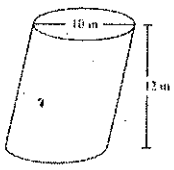
$x = 3$




**Find the volume of the following figures.**

**18**

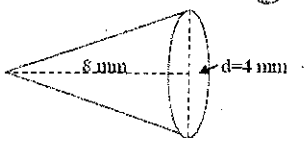
$25\pi(12)$




$300\pi$

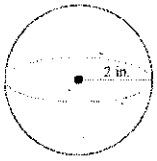
**19**

$\frac{4\pi(8)}{3} + \frac{32\pi}{3}$



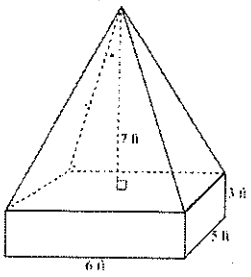

**20.**

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




$\frac{32\pi}{3}$

**21. Find the volume**




$\frac{30(3) + 30(7)}{3}$

$90 + 70$

$160\ ft^3$

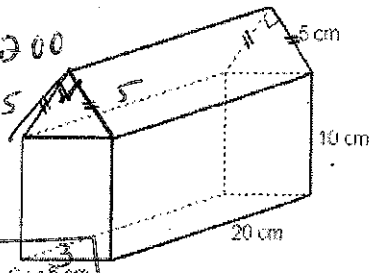
**22. find the volume.**

$120(10) = 1200$

$+ \frac{25}{2}(20)$

$= 1200 + 250$

$1450\ cm^3$




23. A prism has a square base with a width 3 cm. Its volume is 90 $cm^3$. A square pyramid has the same width for its base and the same height as the prism. What is the volume of the pyramid?

30

24. Collin is going to change the oil in his Jeep. He has two funnels. A has a diameter of 6 inches and is 5 inches deep. B has a diameter of 5 inches but is 7 inches deep. He wants to use the funnel with the greatest volume to minimize the chance of spilling the oil. What are the volumes of the funnels? Which one should he use A or B?

A: $9(5)\pi = 45\pi$

B: $\left(\frac{5}{2}\right)^2(7)\pi = 43.75\pi$

A

25. A perfume manufacturer is offering a gift set for the holidays that contains a regular size bottle that is a rectangular prism with interior base dimensions of 8cm by 4cm, and a height of 9cm. It also contains a travel size cylindrical bottle with an interior diameter of 3cm and a height of 5cm. What volume of perfume does it need to fill 1,000 gift sets?

Rect

$32(9) = 288$

Cylinder

$\left(\frac{3}{2}\right)^2 5\pi$

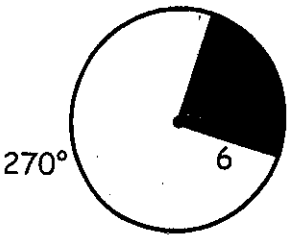
$\frac{9}{4}(5)\pi$

$\frac{45}{4}\pi$

$1000\left(288 + \frac{45}{4}\pi\right)$

$288000 + 11250\pi$

26. Find the **area** and **arc length** of the shaded region.




A.L: $12\pi\left(\frac{3}{4}\right) = 9\pi$

Area $36\pi\left(\frac{3}{4}\right) = 27\pi$

27. The area of one piece of pizza is $9\pi$ $in^2$. The pizza is cut into eighths. Find the radius of the pizza pie.

$9\pi(8) = 72\pi$ $72\pi = \pi r^2$

$72 = r^2$

$6\sqrt{2} = r$

28. Determine the radius of the circle with a circumference of $26\pi$ $cm^2$. Use the radius to then find the area.

$r = 13$

$A = 169\pi$

29. A sprinkler system can shoot water at a distance of 15 yards. It is set up to rotate 240 degrees. How much area of the yard is covered by the sprinkler?

$15^2\pi\left(\frac{24}{36}\right) = 225\pi\left(\frac{2}{3}\right) = \frac{450\pi}{3}$

30. The clock in our classroom has a radius of 9 inches. If it's 4:00, find the arc length and area of the sector for this time.

A.L. $18\pi\left(\frac{1}{3}\right) = 6\pi$

Area $81\pi\left(\frac{1}{3}\right) = 27\pi$