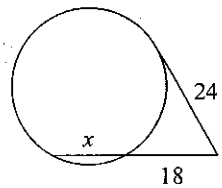
Geometry Name_____ ID: 1

Midterm (Cumulative) Circle and Volume Review

Date_____ Period____

Solve for *x*. Assume that lines which appear tangent are tangent.

1)



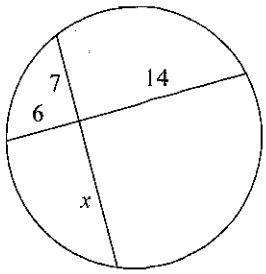
$\boxed{x = 14}$

$24^2 = 18(x+18)$

$576 = 18x + 324$

$252 = 18x$

2)

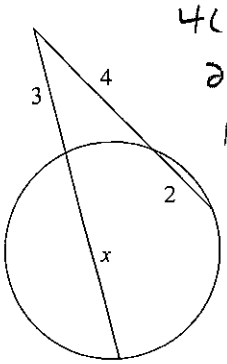


$7x = 6(14)$

$7x = 84$

$\boxed{x = 12}$

3)



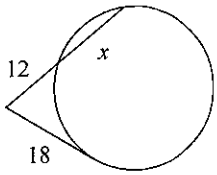
$4(6) = 3(x+3)$

$24 = 3x + 9$

$15 = 3x$

$\boxed{5 = x}$

4)



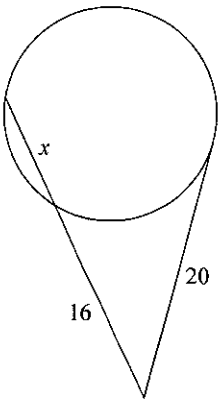
$\boxed{x = 15}$

$18^2 = 12(x+12)$

$324 = 12x + 144$

$180 = 12x$

5)



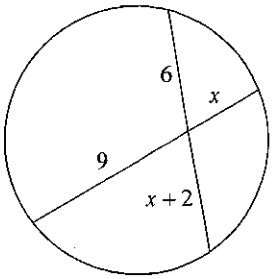
$20^2 = 16(x+16)$

$400 = 16x + 256$

$144 = 16x$

$\boxed{9 = x}$

6)



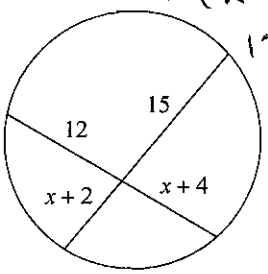
$6(x+2) = 9x$

$6x + 12 = 9x$

$12 = 3x$

$\boxed{4 = x}$

7)



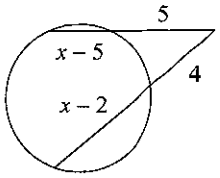
$12(x+4) = 15(x+2)$

$12x + 48 = 15x + 30$

$18 = 3x$

$\boxed{6 = x}$

8)



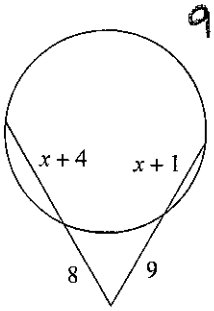
$5(5 + x - 5) = 4(4 + x - 2)$

$5(x) = 4(x + 2)$

$5x = 4x + 8$

$\boxed{x = 8}$

9)



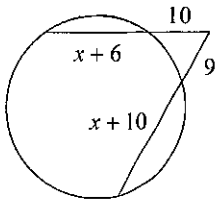
$9(9 + x + 1) = 8(8 + x + 4)$

$9(x + 10) = 8(x + 12)$

$9x + 90 = 8x + 96$

$\boxed{x = 6}$

10)



$10(10 + x + 6) = 9(9 + x + 10)$

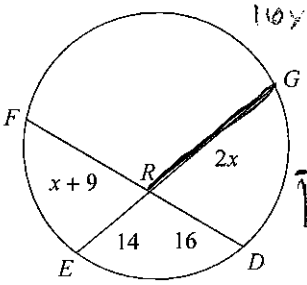
$10(x + 16) = 9(x + 19)$

$10x + 160 = 9x + 171$

$\boxed{x = 11}$

Find the measure of the line segment indicated. Assume that lines which appear tangent are tangent.

11) Find *RG*



$16(x + 9) = 2x(14)$

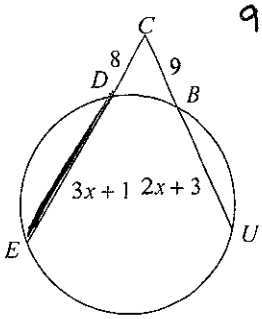
$16x + 144 = 28x$

$144 = 12x$

$\boxed{12 = x}$

$\boxed{RG = 24}$

12) Find *ED*



$9(9 + 2x + 3) = 8(8 + 3x + 1)$

$9(2x + 12) = 8(3x + 9)$

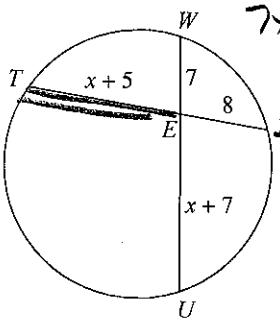
$18x + 108 = 24x + 72$

$36 = 6x$

$\boxed{6 = x}$

$\boxed{ED = 19}$

13) Find *ET*



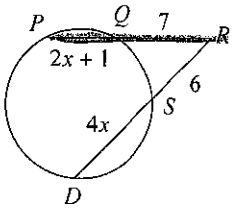
$7(x + 7) = 8(x + 5)$

$7x + 49 = 8x + 40$

$\boxed{9 = x}$

$\boxed{ET = 14}$

14) Find *PR*



$7(7 + 2x + 1) = 6(6 + 4x)$

$7(2x + 8) = 6(4x + 6)$

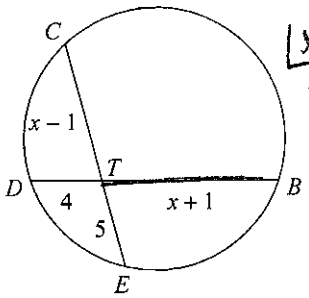
$14x + 56 = 24x + 36$

$20 = 10x$

$\boxed{2 = x}$

$\boxed{PR = 12}$

15) Find *TB*



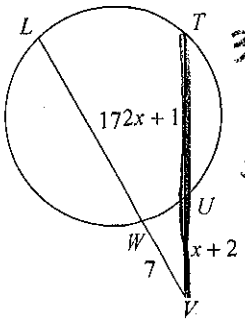
$5(x-1)=4(x+1)$

$5x-5=4x+4$

$\boxed{x=9}$

$\boxed{TB=10}$

16) Find *TV*



$x+2(x+2+2x+1)=7(7+17)$

$x+2(3x+3)=7(24)$

$3x^2+3x+6x+6=168$

$3x^2+9x-162=0$

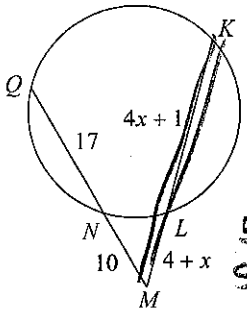
$3(x^2+3x-54)=0$

$3(x+9)(x-6)=0$

$x=-9$ $\boxed{x=6}$

$\boxed{TV=21}$

17) Find *KM*



$4+x(4+x+4x+1)=10(27)$

$4+x(5x+5)=270$

$20x+20+5x^2+5x=270$

$5x^2+25x-250=0$

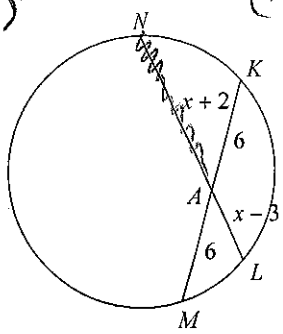
$5(x^2+5x-50)=0$

$5(x+10)(x-5)=0$

$x=-10$ $\boxed{x=5}$

$\boxed{KM=30}$

18) Find *AN*



$(x+2)(x-3)=6(6)$

$x^2-3x+2x-6=36$

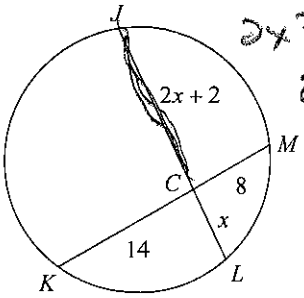
$x^2-x-42=0$

$(x-7)(x+6)=0$

$\boxed{x=7}$ $x=-6$

$\boxed{AN=9}$

19) Find *CJ*



$x(2x+2)=8(14)$

$2x^2+2x-112=0$

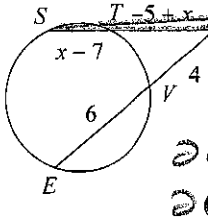
$2(x^2+x-56)=0$

$2(x+8)(x-7)=0$

$x=-8$ $\boxed{x=7}$

$\boxed{CJ=16}$

20) Find *SU*



$-5+x(-5+x+x-7)=4(10)$

$(-5+x)(2x-12)=40$

$-10x+60+2x^2-12x=40$

$2x^2-22x+20=0$

$2(x^2-11x+10)=0$

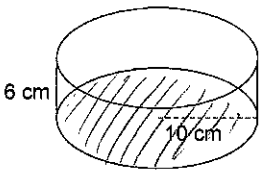
$2(x-10)(x-1)=0$

$\boxed{x=10}$ $x=1$

$\boxed{SU=8}$

Find the volume of each figure. Round your answers to the nearest hundredth, if necessary.

21)



$V=Bh$ $B=\pi r^2$

$=\pi(10)^2$

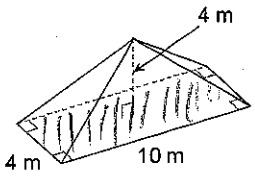
$=100\pi$

$V=100(6)\pi$

$V=600\pi\ cm^3$

$\approx 1{,}884.96\ cm^3$

22)



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

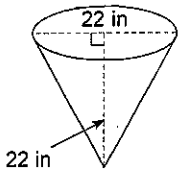
$=\frac{1}{3}(4)(10)(4)$

$=\frac{1}{3}(40)(4)$

$=\frac{1}{3}(160)$

$=53.\overline{3}\ m^3$

23)



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

$B = \pi r^2$

$= \pi (11)^2$

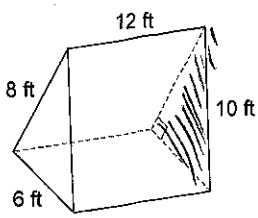
$= 121\pi$

$V = \frac{1}{3}(121\pi)(22)$

$= \frac{2662}{3}\pi \text{ in}^3$

$\approx 2{,}787.64 \text{ in}^3$

24)



$V = Bh$

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

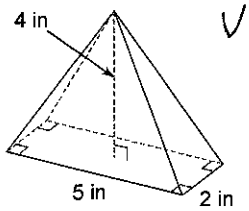
$= \frac{1}{2}(6)(8)$

$= 24$

$V = 24(12)$

$V = 288 \text{ ft}^3$

25)



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

$= \frac{1}{3}(5)(2)(4)$

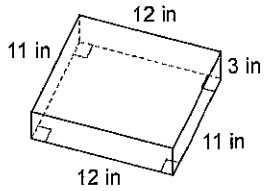
$= \frac{1}{3}(10)(4)$

$= \frac{1}{3}(40)$

$= \frac{40}{3} \text{ in}^3$

$\approx 13.\overline{3} \text{ in}^3$

26)



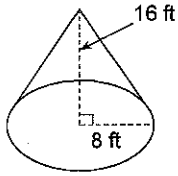
$V = Bh$

$= (12)(11)(3)$

$= 12(33)$

$= 396 \text{ in}^3$

27)



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

$B = \pi r^2$

$= \pi (8)^2$

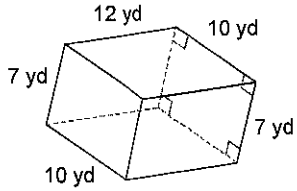
$= 64\pi$

$V = \frac{1}{3}(64\pi)(16)$

$= \frac{1024}{3}\pi \text{ ft}^3$

$\approx 1{,}072.33 \text{ ft}^3$

28)



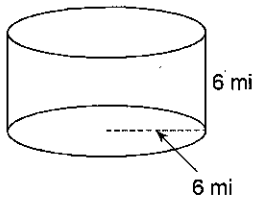
$V = Bh$

$= (12)(10)(7)$

$= 120(7)$

$= 840 \text{ yd}^2$

29)



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

$B = \pi r^2$

$= \pi (6)^2$

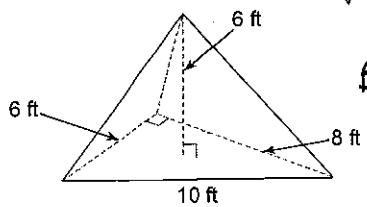
$= 36\pi$

$V = \frac{1}{3}(36\pi)(6)$

$= 72\pi \text{ mi}^3$

$V \approx 226.19 \text{ mi}^3$

30)



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

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

$= \frac{1}{2}(6)(8)$

$= 24$

$V = \frac{1}{3}(24)(6)$

$= 48 \text{ ft}^3$