

2)

$\angle CBD = \frac{1}{2} \widehat{CB}$
 $20 + 3x = \frac{1}{2}(112)$
 $20 + 3x = 56$
 $-20 \quad -20$
 $3x = 36$
 $\frac{3x}{3} = \frac{36}{3}$
 $x = 12$

5)

$360 = 18x + 24 + 7x + 1 + 15x + 15$
 $360 = 40x + 40$
 $-40 \quad -40$
 $320 = 40x$
 $\frac{320}{40} = \frac{40x}{40}$
 $8 = x$

6)

$43x + 1 = \frac{1}{2}(88)$
 $43x + 1 = 44$
 $-1 \quad -1$
 $43x = 43$
 $x = 1$

7)

$9x + 5 = \frac{1}{2}(64)$
 $9x + 5 = 32$

12)

$64 = 10x - 6$
 $+6 \quad +6$
 $70 = 10x$
 $\frac{70}{10} = \frac{10x}{10}$
 $7 = x$

15)

$12x + 6 + 114 = 180$

19)

$182 + 58 + 7x + 22 = 360$

20)

$8x + 20 + 54 + 166 = 360$

Measure of Arcs, Inscribed Angles, and Central Angles

$m\angle ABC = 120^\circ$ central
 $m\angle ADC = 60^\circ$ inscribed
 $m\widehat{AC} = 120^\circ$ arc
 central = arc
 inscribed = $\frac{1}{2}$ arc

Questions to Consider:

- Do I have a central angle or an inscribed angle?
- Do I have a semi-circle or am I working with the entire 360 degrees?
- Do I have two angles that share an intercepted arc?
- Do I have a vertical pair?

$m\widehat{RQ}$

$44x + 3 + 16x - 3 = 180$
 $\frac{60x}{60} = \frac{180}{60}$
 $x = 3$
 $\widehat{RQ} = 16x - 3$
 $= 16(3) - 3$
 $m\widehat{RQ} = 45$

$m\widehat{HL}$

$x+67$
 $x+123$

$x+67+x+123=180$
 $2x+190=180$
 $-190 -190$
 $2x=-10$
 $x=-5$
 $m\widehat{HL} = x+123$
 $= -5+123$
 $m\widehat{HL} = 118$

$m\angle QUP$

$21x+8$
 45°
 70°
 30°
 $7x+11$
 $7x+11$

$360 = 2(1x+8) + 70 + 30 + 7x+11 + 45$
 $360 = 2x+16 + 70 + 30 + 7x+11 + 45$
 $360 = 28x + 164$
 $-164 -164$
 $196 = 28x$
 $\frac{196}{28} = \frac{28x}{28}$
 $7 = x$
 $\angle QUP = 7x+11$
 $= 7(7)+11$
 $\angle QUP = 60$

Find $m\angle FHG$

112°
 $19x$
 $23x+4$
 $38x$

$23x+4+38x+112=360$
 $61x+116=360$
 $-116 -116$
 $61x = 244$
 $\frac{61x}{61} = \frac{244}{61}$
 $x=4$
 $\angle FHG = \widehat{FG} (\frac{1}{2})$
 $= (23x+4) (\frac{1}{2})$
 $= (23(4)+4) (\frac{1}{2})$
 $48 = (96) (\frac{1}{2})$
 $\angle FHG = 48$

Find $m\widehat{JL}$

$4x+162$
 $x+99$
 $2x+81$
 $2x+198$

$4x+162+2x+198=360$
 $6x+360=360$
 $6x=0$
 $x=0$
 $m\widehat{JL} = 162$

Find $m\angle BXC$

$9x+7$
 $10x+2$

$9x+7=10x+2$
 $-2 -2$
 $9x+5=10x$
 $5=x$
 $\angle BXC = 10(5)+2$
 $= 52$