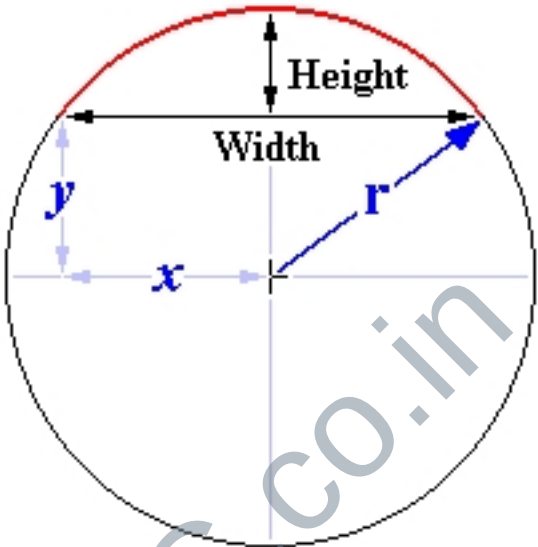
Circular Arch



$$y = r - h \qquad x = \frac{w}{2}$$

$$r^2 = x^2 + y^2 = \left[\frac{w}{2}\right]^2 + [r-h]^2$$

$$= \frac{w^2}{4} + r^2 - 2rh + h^2$$

$$8rh = w^2 + 4h^2$$

$$r = \frac{w^2 + 4h^2}{8h}$$

To find the centripetal force, one can use this equation: $F_c = \frac{mv^2}{r}$

To find the velocity, one can use the equation: $v = \frac{2\pi r^2}{T}$

To find the acceleration, one must use the equation: $a_c = \frac{v^2}{r}$

To find the period one must use the equation: $T = \frac{1}{f}$