$P := 100\ kip$
$Mx := 325\ kip\ ft$
$My := 375\ kip\ ft$

$ey := \frac{Mx}{P}$
$ey = 3.25\ ft$
$ex := \frac{My}{P}$
$ex = 3.75\ ft$

$D := 15\ ft$
$W := 10.5\ ft$

$Xp := \frac{D}{2} - ex$
$Xp = 3.75\ ft$
$Yp := \frac{W}{2} - ey$
$Yp = 2\ ft$

$A := 2 \cdot D$
$A = 30\ ft$
$B := 2 \cdot W$
$B = 21\ ft$

$iter := 0$
$niter := 2$
$tol := 0.99$
$Anew := 0\ ft$
$Bnew := 0\ ft$

```
while iter < niter
    AD := ((A - D) + (A - D)/sign(A - D))/2
    BW := ((B - W) + (B - W)/sign(B - W))/2
    Area := (1/2)·A·B·(1 - (AD/A)^2 - (BW/B)^2)
    Qox := (1/6)·A·B^2·(1 - (AD/A)^3 - (BW/B)^3 - 3·(BW/B)^2·(W/B))
    Qoy := (1/6)·A^2·B·(1 - (AD/A)^3 - (BW/B)^3 - 3·(AD/A)^2·(D/A))
    Iox := (1/12)·A·B^3·(1 - (AD/A)^4 - (BW/B)^4 - 2·(BW/B)^2·(W/B)·((2·B + W)/B))
    Ioy := (1/12)·A^3·B·(1 - (AD/A)^4 - (BW/B)^4 - 2·(AD/A)^2·(D/A)·((2·A + D)/A))
    Ixy := (1/24)·A^2·B^2·(1 - (AD/A)^4 - (BW/B)^4 - 4·(AD/A)^3·(D/A) - 4·(BW/B)^3·(W/B))
    k1 := Ixy - Yp·Qoy
    k2 := Ixy - Xp·Qox
    k3 := Iox - Yp·Qox
    k4 := Ioy - Xp·Qoy
    k5 := Qox - Yp·Area
    k6 := Qoy - Xp·Area
    Anew := (k1·k2 - k3·k4)/(k2·k5 - k3·k6)
    Bnew := (k1·k2 - k3·k4)/(k1·k6 - k4·k5)
    if (Anew/A < tol) ∧ (Bnew/B < tol)
        A := Anew
        B := Bnew
    else
        iter := niter + 1
    iter := iter + 1
```

$A = 21.7857\ ft$
$B = 12.3173\ ft$
$iter = 1$