

FOR A 71.4m SHOT TOWER, FIND THE DEFLECTION DUE TO CORIOLIS

USING THE RESULT FROM EXAMPLE 10.3, THE EASTWARD DEFLECTION OF A FALLING PARTICLE IS

$$y(h) = \frac{1}{3} \sqrt{\frac{8h^3}{g}} \omega \cos \lambda$$

IN RUSSIA, $\lambda = 44^\circ 23' = 44 + \left(\frac{23}{60}\right) = 44.38^\circ$ AND $h = 71.4\text{m}$

$$\Rightarrow y(h) = \frac{1}{3} \sqrt{\frac{8(71.4)^3}{9.8}} \left(\frac{2\pi}{86400}\right) \cos(44.38)$$

$$= 0.00944\text{m}$$

\Rightarrow THE DEFLECTION IS 0.944 cm EASTWARD

NOT A BIG DEAL!