50. (a) Referring to Sample Problem 16-5, we see that the distance between P and C is $h = \frac{2}{3}L - \frac{1}{2}L = \frac{1}{6}L$. The parallel axis theorem (see Eq. 16-30) leads to

$$I = \frac{1}{12}mL^2 + mh^2 = \left(\frac{1}{12} + \frac{1}{36}\right)mL^2 = \frac{1}{9}mL^2 \ .$$

And Eq. 16-29 gives

$$T = 2\pi\sqrt{\frac{I}{mgh}} = 2\pi\sqrt{\frac{L^2/9}{gL/6}} = 2\pi\sqrt{\frac{2L}{3g}}$$

which yields $T = 1.64$ s for $L = 1.00$ m.

(b) Comparing with Eq. 16-32, we note that this T is identical to that computed in Sample Problem 16-5. As far as the characteristics of the periodic motion are concerned, the center of oscillation provides a pivot which is equivalent to that chosen in the Sample Problem (pivot at the edge of the stick).