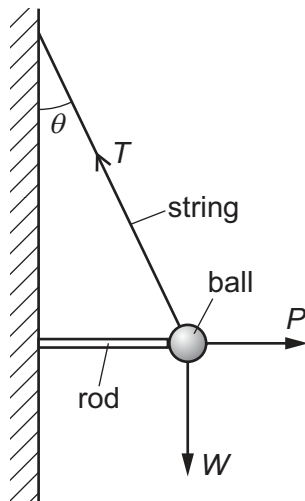


17 The diagram shows a ball of weight  $W$  hanging in equilibrium from a string.



The string is at an angle  $\theta$  to the vertical. The tension in the string is  $T$ . The ball is held away from the wall by a horizontal force  $P$  from a metal rod.

What is the relationship between the magnitudes of  $T$ ,  $P$  and  $W$ ?

**A**  $P = T \cos \theta$  and  $W = T \sin \theta$

**B**  $T = P + W$

**C**  $T^2 = P^2 + W^2$

**D**  $W = P \tan \theta$  and  $W = T \cos \theta$

18 A steel sphere is dropped vertically onto a horizontal metal plate. The sphere hits the plate with