



For this page, do NOT assume that  $g = 9.80\text{m/s}^2$ .

4. A pendulum that is  $3.0\text{m}$  long completes 20 swings in 50s. Determine  $g$ .
5. A child slides down a frictionless slope on a toboggan. Starting from rest, she slides a distance of  $30\text{m}$ , while going through a vertical drop of  $10\text{m}$ . Determine  $g$  if she reaches a speed of  $15\text{m/s}$  at the bottom of the slope.
6. Wile E. Coyote is going to drop a priceless vase off a tall building (height =  $150\text{m}$ ) on Planet X. After releasing the vase, he races down the stairs, and catches the vase just before it smashes on the ground. It takes him  $4.3\text{s}$  to make the trip. What is ' $g$ ' on planet X?

7. A stunt car driver drives off an 80m cliff with a speed of 180km/h. How far from the base of the cliff should a mattress be placed so that he can land safely?

8. A stunt car driver drives her car off a 6.00m high cliff. She leaves the cliff traveling horizontally and needs to land 10.5m from the base of the cliff. How fast should she drive?

9. A cannon ball is shot at 120.0m/s at a  $40^\circ$  angle on level ground. How far from the cannon does it land?