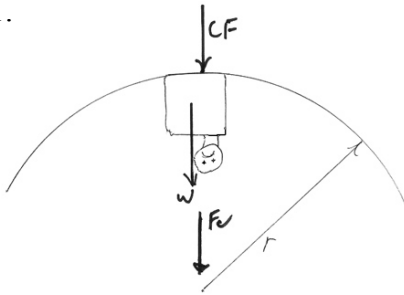


## Roller Coaster Physics Assignment for Lesson 7

Name: \_\_\_\_\_

In each of the below situations, the radius of the track is 100 meters and the speed of the train is  $50 \frac{m}{sec}$ . Find the Force Factor in each case

1.



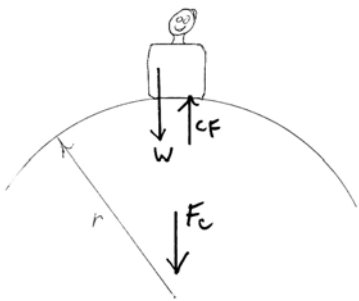
$$FF = \frac{v^2}{rg} - 1$$

$$\frac{v^2}{rg} = \frac{\left(50 \frac{m}{sec}\right)^2}{(100m) \cdot \left(9.8 \frac{m}{sec^2}\right)} = 2.55$$

$$FF = 2.55 - 1$$

$$FF = 1.55$$

2.



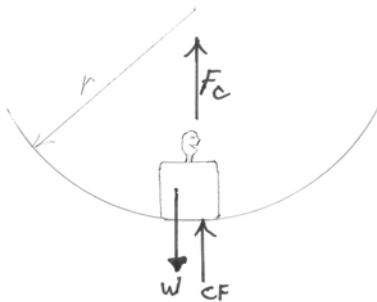
$$FF = 1 - \frac{v^2}{rg}$$

$$\text{From above, } \frac{v^2}{rg} = 2.55$$

$$FF = 1 - 2.55$$

$$FF = -1.55$$

3.



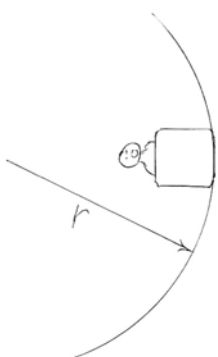
$$FF = \frac{v^2}{rg} + 1$$

$$\text{From above, } \frac{v^2}{rg} = 2.55$$

$$FF = 2.55 + 1$$

$$FF = 3.55$$

4.



$$FF = \frac{v^2}{rg}$$

$$\text{From above, } \frac{v^2}{rg} = 2.55$$

$$FF = 2.55$$