A roller coaster has a radius of 16m and a cart with a mass of 150kg. The cart rounds the curve at 15m/s. What is the normal force exerted by the track onto the cart at the top of the loop?

A roller coaster has a radius of 16m and a cart with a mass of 150kg. The cart rounds the curve at 15m/s. What is the normal force exerted by the track onto the cart at the *bottom* of the loop?

A roller coaster has a mass of 1500kg and rounds a vertical loop (r=12m) at 19m/s. What is the normal force of the track on the cart at the top of the loop?

A roller coaster has a mass of 1500kg and rounds a vertical loop (r=12m) at 19m/s. What is the normal force of the track on the cart at the bottom of the loop?

A rubber stopper (m=52g) is swung in a vertical circle of radius 0.75m at 6m/s. Find the tension in the string at the top of the loop.

A rubber stopper (m=52g) is swung in a vertical circle of radius 0.75m at 6m/s. Find the tension in the string at the bottom of the loop.

A car turns in a horizontal circle (r=20m) at a velocity of 10m/s. Find the minimum coefficient of friction between the wheels and the ground to make this possible.

A car turns in a circle (r=30m) on a flat track where the coefficient of friction between the tires and the road is 0.78. Find the maximum velocity the car can travel at before sliding off the road.

A road developer is looking to make a curve of radius 32m safer by banking the turn. If he creates an angle of 8° towards the center of the curve, what will be the maximum speed a car could travel around the curve, even if the road was covered in ice and there was no friction?

A road developer is looking to make a curve of radius 40m safer by banking the turn. If he creates an angle of 12° towards the center of the curve, what will be the maximum speed a car could travel around the curve, even if the road was covered in ice and there was no friction?

A road developer is looking to make a curve safer by banking the turn. If he creates an angle of 8° towards the center of the curve, and the speed limit of the road is 12m/s, what should the radius of the turn be so that a car could travel around the curve, even if the road was covered in ice and there was no friction?

A road developer is looking to make a curve safer by banking the turn. If he creates an angle of 15° towards the center of the curve, and the speed limit of the road is 9m/s, what should the radius of the turn be so that a car could travel around the curve, even if the road was covered in ice and there was no friction?

A road developer is looking to make a curve safer by banking the turn. If he creates an angle of 5° towards the center of the curve, and the speed limit of the road is 19m/s, what should the radius of the turn be so that a car could travel around the curve, knowing that the average coefficient of friction in ideal conditions is 0.64?

A road developer is looking to make a curve safer by banking the turn. If he creates an angle of 11° towards the center of the curve, and the speed limit of the road is 16m/s, what should the radius of the turn be so that a car could travel around the curve, knowing that the average coefficient of friction in ideal conditions is 0.8?

A road developer is looking to make a curve safer by banking the turn. If he creates an angle of 11° towards the center of the curve of radius 38m, what should the speed limit be if the average coefficient of friction in ideal conditions is 0.8?

A road developer is looking to make a curve safer by banking the turn. If he creates an angle of 7° towards the center of the curve of radius 20m, what should the speed limit be if the average coefficient of friction in ideal conditions is 0.68?