1. A 350kg roller coaster completes a loop with radius 35m at 22m/s2. Find the following values at the top of the loop AND the bottom of the loop: Fg, a, Fn

Top:   
Fg=\_\_3430N\_\_

a = \_\_13.83m/s2

Fn= \_\_1410.5N\_

Bottom:   
Fg=\_\_3430N\_\_

a = \_\_13.83m/s2

Fn= \_\_8270.5N\_

1. A 1000kg car drives around a level track with radius 50m at 23m/s2. Find Fg, FN, a, Ff, μ.

Fg=\_9800N\_

Fn= 9800N

a = 10.58m/s2

Ff = 10580N

μ = 1.08

1. A motor cross racer and bike (400kg) make a tight turn (r=10m) at 13m/s. Find Fg, FN, a, Ff, μ.

Fg=\_3920N

Fn= 3920N

a = 16.9 m/s2

Ff = 6760N

μ = 1.72

1. A roller coaster car (500kg) has a vertical loop (r=17m) that it completes at 14m/s. Find the following values at the top of the loop AND the bottom of the loop: Fg, a, Fn

Bottom:   
Fg=\_\_4900N\_\_

a = \_\_11.53m/s2

Fn= \_10664.7N\_

Top:   
Fg=\_\_4900\_\_

a = \_\_11.53m/s2

Fn= \_\_874.7N\_

1. A car (700kg) drives on an icy turn with radius 30m and μs = 0.18. Find Fg, FN, FFs ac, and **max velocity**

Fg=\_6860N

FN=\_\_6860N

FFs=\_1234.8N\_

ac=\_1.764m/s/s

Vmax=7.27m/s

1. A 7000kg truck circles into a driveway with radius 13m and μs=0.78 Find Fg, FN, FFs, ac, and **max velocity**

Fg=\_68600N

FN=\_\_68600N

FFs­=\_\_53508N

ac=\_7.644m/s/s

Vmax=9.96m/s

1. A car (1500kg) circles a cul-de-sac (μs=.67) radius 15m. Find Fg, FN, FFs, ac, and **max velocity**

Fg=\_14700N

FN=\_14700N

FFs­=\_9849N

ac=\_6.566m/s/s

Vmax=9.92m/s

1. A teacher spins a rubber stopper (50g) in a vertical circle (r=0.5m) at a constant V of 9m/s. Find Fg, ac and T at the top and bottom of the loop

Top:   
Fg=\_\_0.49N\_\_

a = \_\_162m/s/s

T= \_\_7.61N\_

Bottom:   
Fg=\_\_0.49N\_\_

a = \_162m/s/s

T= \_8.59N\_