Answers for Problems

1. What is the weight of a 75 kg man?

M=75 kg F=MG F=(75kg)(10 m/s/s)= F=750 N

G=10 m/s/s

F=?

1. Find the acceleration a 450 kg car undergoes when its engine produces 800 N of force.

M=450 kg A=F/M A=800N/450 kg= A=1.78 m/s/s

F=800 N

A=???

1. A 475 kg car traveling 20 m/s comes to a stop in 8 seconds. Find the force applied by the brakes.

M=475 kg A=V/t A=(20 m/s)/(8 sec)= A=2.5 m/s/s

V=20 m/s

t=8 sec F=MA F=(475 kg)x(2.5 m/s/s F=1190 N

F=????

1. A bulldozer has a mass of 5000 kg, but its engine can output 3000 Newtons of force. The dozer encounters 2000 newtons of friction. How fast can the bulldozer accelerate?

M=5000 kg Fnet=Fa-Ff Fnet=3000N-2000N= Fnet=1000 N

Fa=3000 N (applied force)

Ff=2000 N (friction force) A=Fnet/M A=1000 N/5000 kg A=.2 m/s/s

A=???

1. A bowstring pushed on the arrow with 180 Newtons. The arrow accelerates at 400 m/s/s. What is the mass of the arrow?

F=180 N M=F/A F=180N/400 m/s/s A=.45 m/s/s

A=400 m/s/s

A=???

1. On the moon a 90 kg student would weigh 144 Newtons. How strong is the gravity on the moon?

M=90 kg g=F/M g=144 N/90 kg g=1.6 m/s/s

F=144 N

G=????

1. What force is pushing on the 1400 kg car if we see it accelerate at 3.4 m/s/s?

M=1400 kg F=MA F=(1400kg)(3.4 m/s/s) F=4760 N

A=3.4 m/s/s

F=???