1. [Glencoe99 6.P.20.] --/3 points No Response | Show Details

An 851 kg (1881 lb) dragster, starting from rest, attains a speed of 27.1 m/s (60.7 mph) in 0.59 s.

(a) Find the average acceleration of the dragster during this time interval.
_____ m/s²

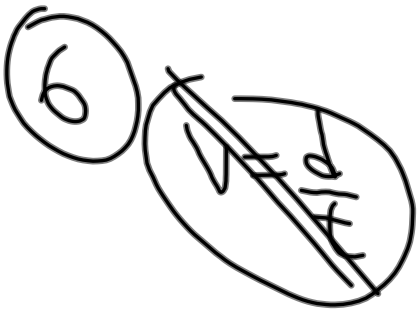
(b) What is the magnitude of the average net force on the dragster during this time?
_____ N

(c) Assume that the driver has a mass of 68 kg. What horizontal force does the seat exert on the driver?
_____ N

GIVEN:
$m = 851\ kg$
$V = 27.1\ m/s$
$V_o = 0$
$t = .59\ sec$

FIND:
a) a
b) $F = ma$

We know,
$V = V_o + at$

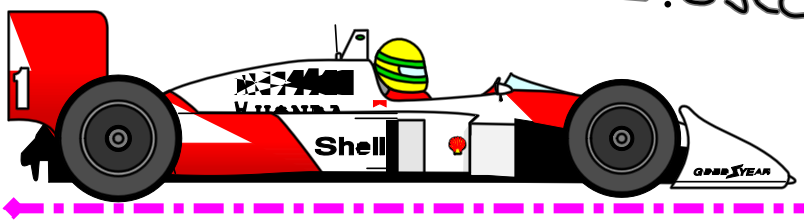


$F = ma$

$m =$ ____
$V_o = 0$
$d =$ ____
$t = 3.0\ sec$

$\Delta d = \frac{1}{2}(V + V_o)t$

$d = d_o + V_o t + \frac{1}{2}at^2$



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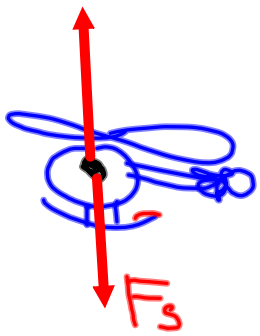
#1 for next WebAssign



$F_{NET} = F_{Lift} - F_g$

$ma = F_{NET} = F_{Lift} - F_g$

Sep 25-8:42 AM

3. [Glencoe99 6.P.23.] --/2 points No Response | Show Details

A 64 kg swimmer jumps off a 9.7 m tower.

(a) Find the swimmer's velocity on hitting the water.
_____ m/s

(b) The swimmer comes to a stop 2.0 m below the surface. Find the net force exerted by the water. (Ignore the swimmer's weight in the water.)
_____ N

Given:

$m = 64\,kg$

$V_0 = 0$

$d_0 = 9.7\,m$

$d = 0$

$a_{gravity} = -9.8\,m/s^2$

a) FIND: V

b) $d = 2.0\,m$ to STOP
So what is this acc to
The speed from stop? part (a)
becomes the initial v
V_0 = part a
$V = 0$

$V^2 = V_0^2 + 2a\Delta d$

$V^2 = 0^2 + 2(-9.8\,m/s^2)(0 - 9.7\,m)$

$V = \sqrt{2(-9.8\,m/s^2)(-9.7\,m)}$

FIND: $F = ma$
So let's find a

$V^2 = V_0^2 + 2a\Delta d$

$0 = (\quad)^2 + 2a(2.0\,m)$

6. [Glencoe99 6.P.25.] **--/1 points** No Response | Show Details

A race car has a mass of 704 kg. It starts from rest and travels 45.0 m in 3.0 s. The car is uniformly accelerated during the entire time. What net force is exerted on it?

_____ N

$m = 704\,kg$

$V_0 = 0$

$d = 45.0\,m$

$d_0 = 0$

$t = 3.0\,sec$

$\frac{1}{2}(V+V_0) = \bar{V} = \frac{45.0\,m}{3.0\,s}$

$\frac{1}{2}(V+V_0) = \frac{\Delta d}{t}$

FIND: $F = ma$

1st off find a

$d = d_0 + V_0 t + \frac{1}{2}at^2$

$0 + 0 + \frac{1}{2}at^2$

$45.0\,m = \frac{1}{2}\,a\,(3.0\,s)^2$

$\frac{90.0\,m}{9.0\,s^2} = a$

Sep 25-10:35 AM