

HONORS PHYSICS Force Quiz Review

NAME: _____

Objectives: P3.1A,d P3.2A,C,d P3.4C,e,f

Objectives: P3.1b, 3.1A, P3.6A,B,C,d

Directions: Please show knowns/formula/solutions for full credit.

1. A 500kg mass accelerates at a rate of 45m/s/s. What force was applied?

22500 $F = ma$
 $F = 500 \times 45$

2. A dog has a mass of 670 kg. What is his weight in N?

6566 $F_w = mg$
 $F_w = 670 \times 9.8$

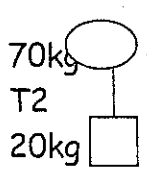
3. What force is needed to accelerate a mass of 300kg to 30m/s in 2m?

67500 n $F = ma$ need a
 $V^2 = V_0^2 + 2ax$
 $30^2 = 2 \cdot 2a$
 $900/4 = a = 225$
 $F = 300 \times 225$

4. A 3000kg car goes from 0 to 26m/s in 10s. What force was used?

7800 $F = ma$ need a
 $V = V_0 + at$
 $26 = 10a$
 $a = 2.6$
 $F = 3000 \times 2.6$

5. If the two masses are being accelerated upwards at 15m/s² find the tension in each cable?

2232 T₁ $T_2 = F_w + F_a$
 $T_1 = T_2 + F_w + F_a$
 $T_1 = 496 + (10 \times 9.8) + (10 \times 15)$
496 T₂ $T_2 = 20 \times 9.8 + 20 \times 15$
 $T_2 = 196 + 300$


6. An 800kg elevator has 30000N tension in the cord while going up. What is its acceleration rate?

27.7 m/s/s $T = F_w - F_a$
 $30000 = 800 \times 9.8 - 800a$
 $a = 27.7$

7. The coefficient of static friction between a 15kg box and the floor is .6. What is the maximum horizontal force that can be applied to the carton before it slips?

88.2 F_h $\mu = \frac{F_f}{F_N}$
 $.6 = \frac{F_f}{15 \cdot 9.8}$