SPH4U-1 PART A&C QUIZ #2

MC 1. c 2. a 3. c 4. d 5. b
6. c 7. d 8. a 9. b 10. b

1.) $a = 3.6\ m/s^2\ [d] = g$
$F_g = 260N\ [d]$ ✓

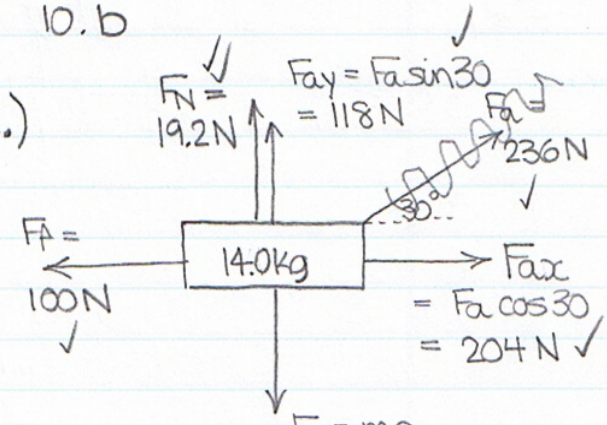
a) $m = \frac{F_g}{g} = \frac{260N}{3.6\ m/s^2}$
$= 72.22...$ ✓

$\boxed{m = 72\ kg}$ ✓

b) $F_g = mg = (72.22...)(9.8)$
$= 707.77...$ ✓

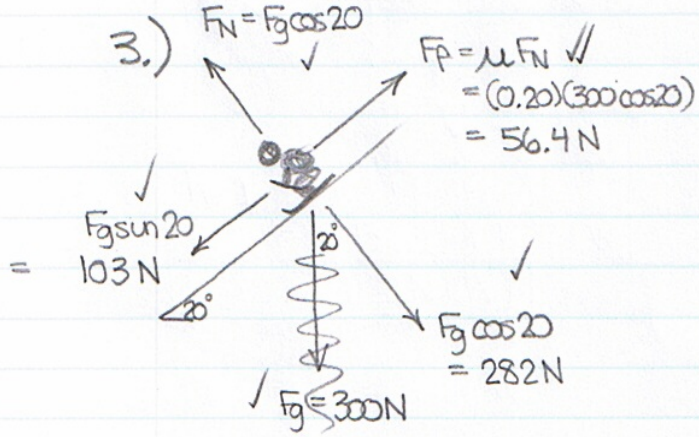
$\boxed{F_g = 710N}$ ✓

2.)

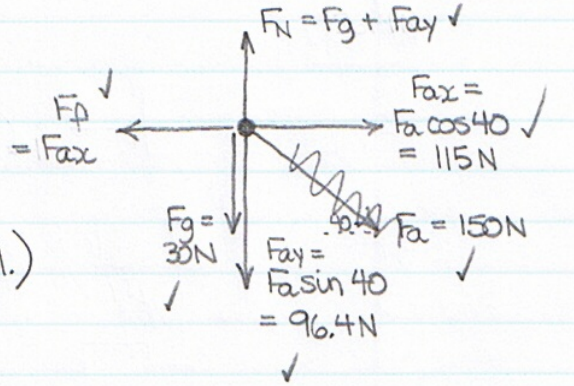


$F_g = mg$
$= 137.2$
$= 137N$ ✓

3.)



4.)



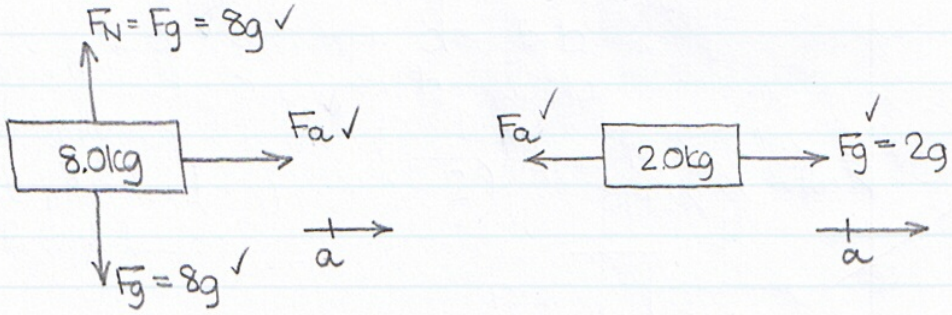
b) ∵ v is constant (ie $a = \phi$)
∴ $F_f = F_{ax}$

$\mu = \frac{F_f}{F_N} = \frac{150 \cos 40}{30 + 150 \sin 40}$
$= 0.9089...$

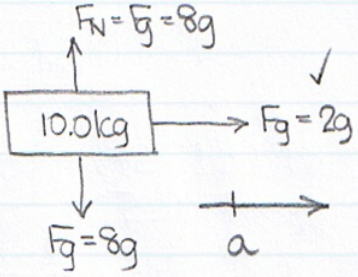
$\boxed{\mu = 0.91}$

5.)

a)



b) Consider as one object



$\overrightarrow{\Sigma F}$ $F_{net} = F_g$ (ma)

$(10.0)a = (2.0)(9.8)$ ✓

$a = 1.96$

$\boxed{a = 2.0\ m/s^2}$ //

c) Consider as two objects

check ✓ (only do if u have time!)

Analyze 8.0 kg object

$\overrightarrow{\Sigma F}$ $F_{net} = F_a$

$(8.0)(1.96) = F_a$ ✓

$15.68 =$

$\boxed{F_a = 16\ N}$ //

2.0 kg object

$\overrightarrow{\Sigma F}$ $F_{net} = F_a + F_g$

$(2)(1.96) = F_a + (2)(9.8)$

$-15.68 = F_a$

∴ done correctly (forces are equal-same value- and opposite- one is +ve while the other is -ve)