**Physics 20 - Lesson 18**

**Dynamics – Pulleys and Systems**

Possible 125 / 71

1)



40

15



/4

calculate acceleration first

5.0

3.0



2)



/6

using the 5.0 kg block



acceleration

3)

3

50





/7



Tension – I chose the 3.0 kg mass

FT



+

●

\_

4)

●

100

25







+





Acceleration

125 kg



/12



Tension

100 kg



●



5)

A

B





+

12.0kg





Acceleration

/11

●



7.0kg

Tension



6)

●

The force on each girl will be equal (360N) but opposite in direction



a)

/12

b)



c)

7)







10 kg



20 kg

= +60 N





(–) (+)



/ 9





30kg



Acceleration



8a)

 = –883N

 = +932N







883N 932N

●

/5

b)









/5



c)









FgC

a negative net force indicates that the men do not move in the positive direction, therefore a = 0

/6

Bonus



a)



16 kg 24 kg 20 kg

135 N

1)

/9

TB may be calculated by combining the mass of the 16 kg girl and the 24 kg girl

b) TA may be calculated using the 16 kg girl



Bonus



2)

A

B



– +

/5

Bonus

3)



A

B



+

–

a) find mass B

/8

b) find tension – use mass A



Bonus











6.0 kg







4)





/8



Bonus

5)

The inertia of the 0.5 kg block will be overcome when the acceleration of the system exceeds the friction force between the two blocks.

•

•



/8



Using the acceleration we can calculate the applied force.



Bonus

6)





–







/ 10

