**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.

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•

/8

Using the acceleration we can calculate the applied force.

Bonus

6)



–







/ 10

