Scott Pratt

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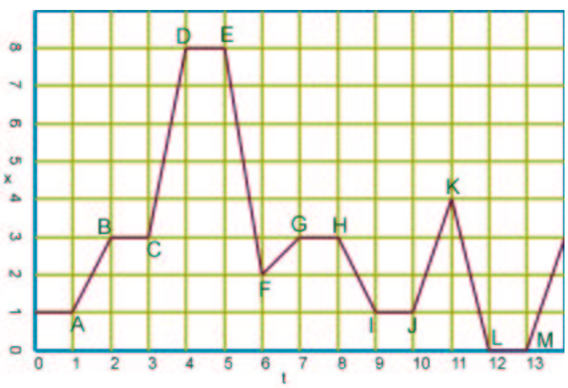
0 pt



In this graph of displacement versus time, what is the average velocity in going from point A to point H in m/s? (Assume that the vertical axis is given in meters and that the horizontal axis is given in seconds)

1.A◯ 0.286 **B**◯ 0.323 **C**◯ 0.365 **D**◯ 0.412
E◯ 0.466 **F**◯ 0.526 **G**◯ 0.595 **H**◯ 0.672

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1 pt After landing, a jet airplane comes to rest uniformly (the acceleration is constant) in 8.5 seconds. The landing speed of the aircraft is 198 km/hour. How far, in m, does the aircraft roll?

2.A◯ 56.2 **B**◯ 74.8 **C**◯ 99.4 **D**◯ 132.2
E◯ 175.9 **F**◯ 233.9 **G**◯ 311.1 **H**◯ 413.8

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1 pt
A drag racer reaches 317 km/hr in a 1 km race. Assuming constant acceleration, what was the racer's acceleration (in m/s^2) during the race?

3.A◯ 0.932 **B**◯ 1.239 **C**◯ 1.648 **D**◯ 2.192
E◯ 2.915 **F**◯ 3.877 **G**◯ 5.156 **H**◯ 6.858

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1 pt A snowball is launched horizontally from the top of a rectangular building with an initial velocity of 17 m/s. It lands 40 m from the base of the building. How tall was the building? *(in* `m`*)*

4.A◯ 12.39 **B**◯ 14.49 **C**◯ 16.96 **D**◯ 19.84
E◯ 23.21 **F**◯ 27.16 **G**◯ 31.77 **H**◯ 37.17

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1 pt A plane is capable of moving at a speed of 210 m/s in still air. It is on course to move due east (relative to the earth) despite a wind of 43 m/s which is blowing from the north. What is the velocity of the plane relative to the ground? *(in* `m/s`*)*

5.A◯ 49.4 **B**◯ 65.7 **C**◯ 87.4 **D**◯ 116.2
E◯ 154.5 **F**◯ 205.6 **G**◯ 273.4 **H**◯ 363.6

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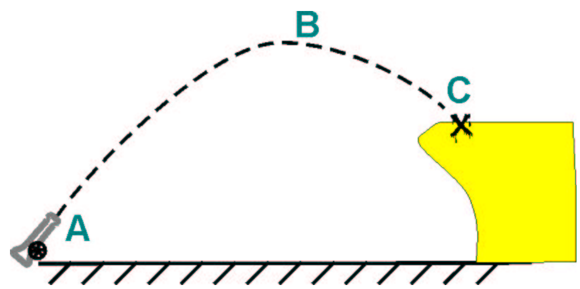
1 pt Consider a projectile which strikes a target as shown below. Ignore all forces except gravity. Point A refers to a point just beyond the muzzle of the cannon, B refers to the highest point in the trajectory and C refers to a point just before landing on the cliff.



▷ The horizontal component of the velocity at A is ____ than the horizontal component of the velocity at C.

6. **A**◯ greater than **B**◯ less than
C◯ equal to

▷ The acceleration at B is ____ the acceleration at C.

7. **A**◯ greater than **B**◯ less than
C◯ equal to

▷ The vertical component of the velocity at B is ____ zero.

8. **A**◯ greater than **B**◯ less than
C◯ equal to

▷ The magnitude of the vertical component of the velocity at A is ____ the magnitude of the vertical component of the velocity at C

9. **A**◯ greater than **B**◯ less than
C◯ equal to

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1 pt A train moves at constant velocity of 60 mph. A cannon is stationed on a flatcar moving with the train. The cannon has a muzzle velocity of 120 mph. If the gunner wishes for the cannon ball to land on top of the cannon, she should: (ignore air resistance)

A Aim the cannon 45 degrees from vertical, pointing backward.

B Aim the cannon straight up.

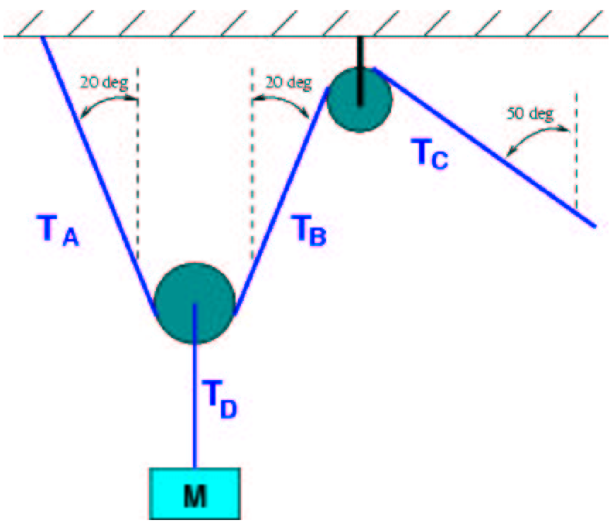
C Aim the cannon 30 degrees from the vertical, pointing backward.

D Aim the cannon 30 degrees from the vertical, pointing forward.

E Aim the cannon 45 degrees from the vertical, pointing forward.

▷
10. **A**◯ **B**◯ **C**◯ **D**◯ **E**◯

1 pt



Consider the pulley system above which is holding the mass M in equilibrium. Assume each pulley is massless.

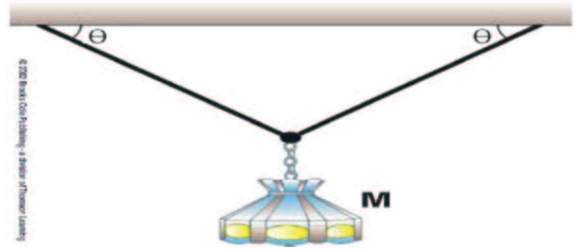
▷ $T_A + T_B$ is ______________________ T_D
11. **A**◯ equal to **B**◯ greater than **C**◯ less than

▷ T_A is ____________________ T_B.
12. **A**◯ equal to **B**◯ greater than **C**◯ less than

▷ T_B is ______________________ T_C
13. **A**◯ equal to **B**◯ greater than **C**◯ less than

▷ T_D is ______________________ Mg
14. **A**◯ equal to **B**◯ greater than **C**◯ less than

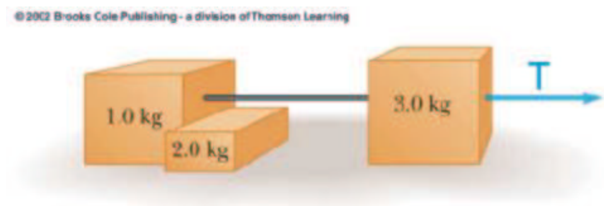
1 pt



Find the tension in the two wires that supoort the light fixture. M=13 kg, θ=39 degrees. *(in* N*)*

15.A◯ 22.9 **B**◯ 33.2 **C**◯ 48.2 **D**◯ 69.9
E◯ 101.3 **F**◯ 146.9 **G**◯ 213.0 **H**◯ 308.9

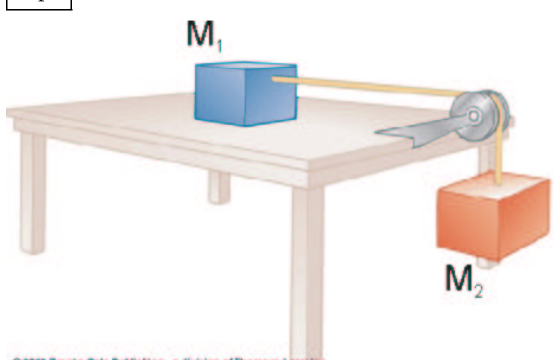
1 pt



Assume that the three blocks in the figure move together on a frictionless surface and that a T=35 N force acts as shown on the 3.0-kg block. What is the tension in the cord connecting the 3.0-kg and the 1.0-kg blocks? *(in* N*)*

16.A◯ 17.50 **B**◯ 20.47 **C**◯ 23.96 **D**◯ 28.03
E◯ 32.79 **F**◯ 38.37 **G**◯ 44.89 **H**◯ 52.52

1 pt



Consider the figure above, with M_1=105 kg and M_2=44.1 kg. What is the minimum static coefficient of friction necessary to keep the block from slipping?

17.A◯ 0.0759 **B**◯ 0.1009 **C**◯ 0.1342
D◯ 0.1785 **E**◯ 0.2374 **F**◯ 0.3158
G◯ 0.4200 **H**◯ 0.5586