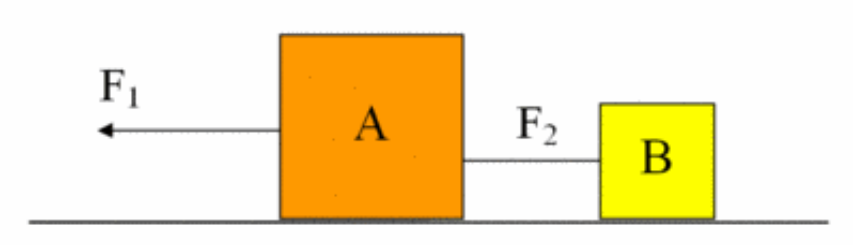
Name: _____ **Class:**
Class #: _____ **Section #:** _____
Instructor: David McKain **Assignment:** Practice Test Preview

Question 1: (1 point)

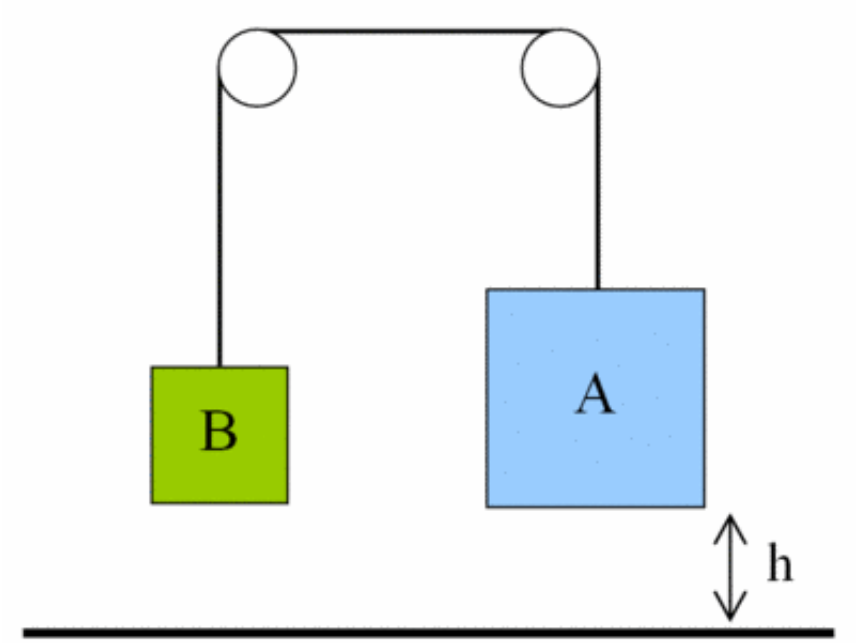


Boxes A and B are resting on a smooth, frictionless surface. Box A weighs 4.0kg and box B weighs 1.5kg, and the boxes are connected to each other with a string. A force $F_1 = 12.85\text{N}$ is applied to box A, causing both boxes to accelerate towards the left.

Calculate the force F_2 that the string exerts on box B.

(a) 2.34N
(b) 3.50N
(c) 9.35N
(d) 12.85N

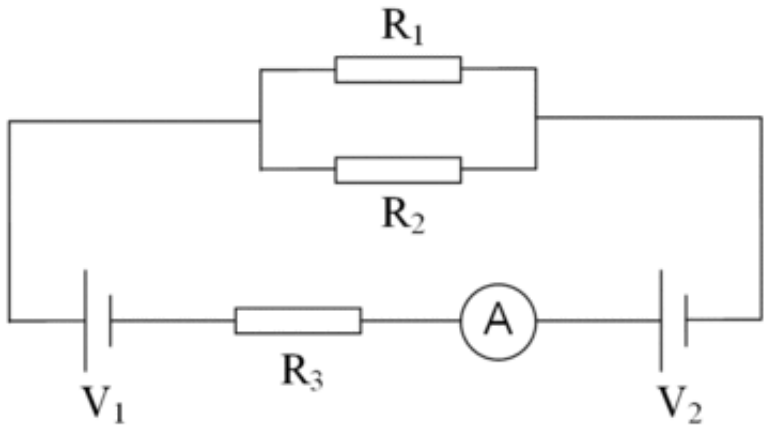
Question 2: (1 point)



Boxes A and B are connected to each other by a string which passes over frictionless pulleys. Box A has a mass of $1\,\mathrm{kg}$ and box B has a mass of $3\,\mathrm{kg}$. If the boxes are released from rest, what time does it take for box B to descend a height of $h = 1.2\,\mathrm{m}$ and reach the ground? (The acceleration due to gravity is $g = 9.81\,\mathrm{ms}^{-2}$.)

(a) 0.70 s
(b) 0.61 s
(c) 0.57 s
(d) 0.49 s

Question 3: (1 point)



In this circuit, the batteries provide voltages of $V_1 = 6\,\mathrm{V}$ and $V_2 = 3\,\mathrm{V}$. The values of the resistors are $R_1 = 4\,\Omega$, $R_2 = 6\,\Omega$ and $R_3 = 5\,\Omega$.

Calculate the current which will be measured by the ammeter.

(a) $0.41\,\mathrm{A}$

(b) $0.60\,\mathrm{A}$

(c) $1.22\,\mathrm{A}$

(d) $1.66\,\mathrm{A}$

Question 4: (1 point)

A and B are blocks made from the same type of metal. Block A has a mass of $3\,\mathrm{g}$.

It takes $160\,\mathrm{J}$ of energy to heat block A from a temperature of $2640\,\mathrm{K}$ to its melting point of $2850\,\mathrm{K}$. It takes $610\,\mathrm{J}$ of energy to heat block B from a temperature of $2390\,\mathrm{K}$ to the same melting point of $2850\,\mathrm{K}$.

It then takes $340150\,\mathrm{J}$ of energy to completely melt block B. How much energy would it take to completely melt block A?

(a) $745100\,\mathrm{J}$

(b) $592000\,\mathrm{J}$

(c) $195400\,\mathrm{J}$

(d) $89200\,\mathrm{J}$