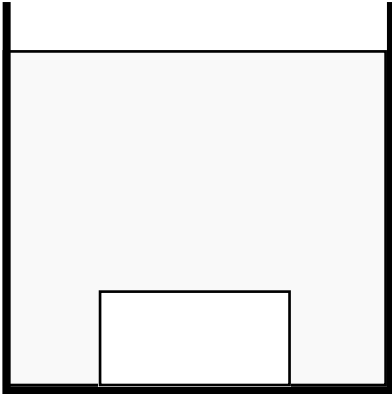
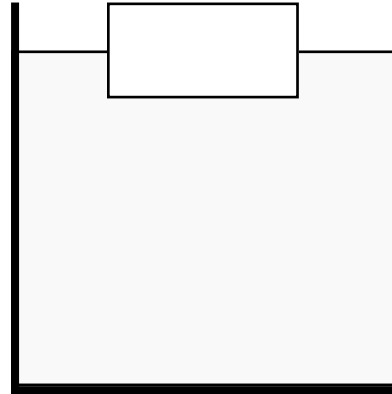


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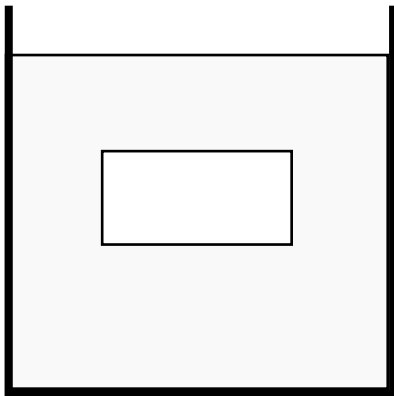
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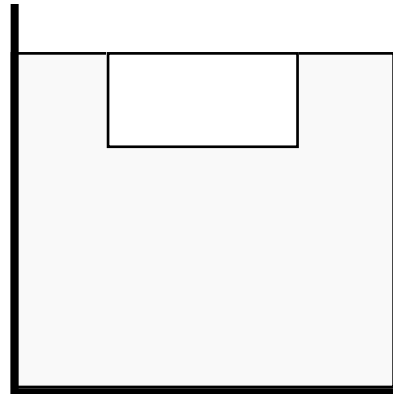
1] If the density of the fluid is 2 kg/m^3 , what is the minimum density of the block?



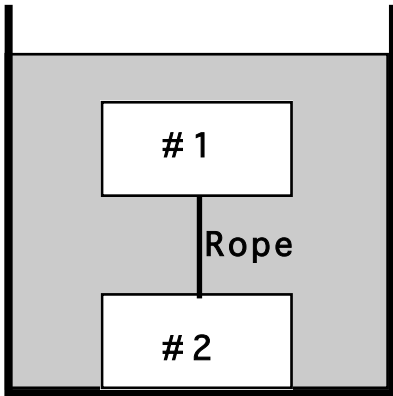
2] If the density of the fluid is 2 kg/m^3 , what is the density of the block?



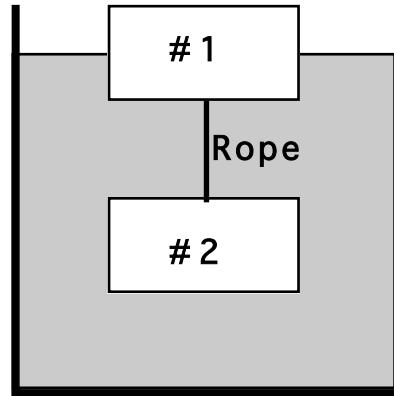
3] If the density of the fluid is 2 kg/m^3 , what is the density of the block?



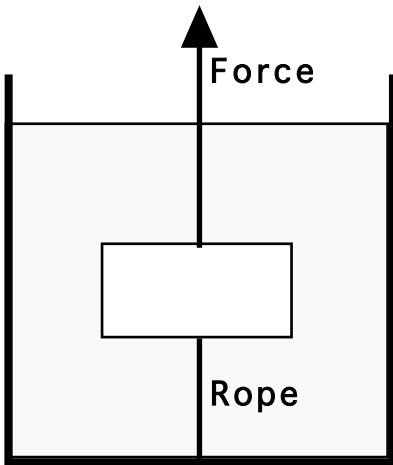
4] If the density of the fluid is 2 kg/m^3 , what is the density of the block?



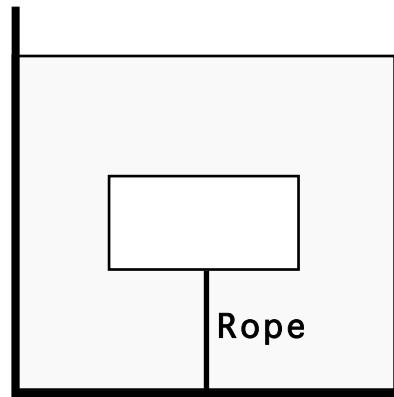
5] What is the tension in the rope?
 Given: block #1 is 500 kg & 1m^3
 block #2 is 10,000 kg & 1m^3
 fluid's density is $1,000\text{ kg/m}^3$



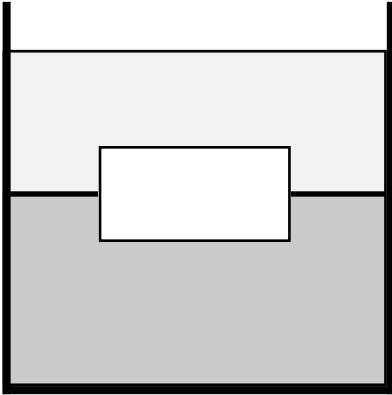
6] What is the tension in the rope?
 Given: block #1 is 10 kg & 100m^3
 block #2 is 2,500 kg & 2m^3
 fluid's density is $1,000\text{ kg/m}^3$



7] If the system is static, what is the force?
 Given: block is 300 kg & 120m^3
 tension in rope is 7,000 N
 density of fluid is 5 kg/m^3



8] If the rope is cut, what is the acceleration of the block?
 Given: block is 10m^3
 block's density is 750 kg/m^3
 fluid's density is $1,000\text{ kg/m}^3$

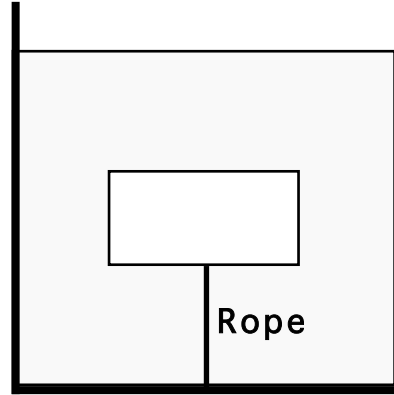


9] If 50% of the block is in the top fluid, what is the mass of the block?

Given: block is 30m^3

Top fluid's is 500 kg/ m^3

bottom fluid's is $1,000\text{ kg/ m}^3$



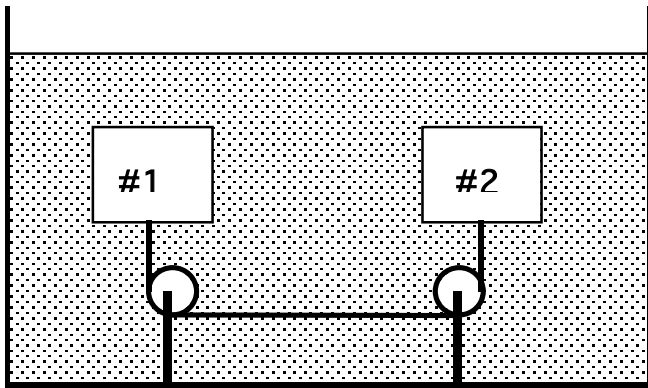
10] If the block's volume is 50% "X" and 50% "Y", what is the tension in the rope?

Given: block is 1 m^3

"X" density is $1,000\text{ kg/ m}^3$

"Y" density is 750 kg/ m^3

fluid's density is $2,000\text{ kg/ m}^3$



11] Find the acceleration of the system and the tension in the rope.

Given: block #1 is $1,000\text{ kg}$ & 10m^3

block #2 is $1,000\text{ kg}$ & 5m^3

density of fluid is $1,000\text{kg/ m}^3$

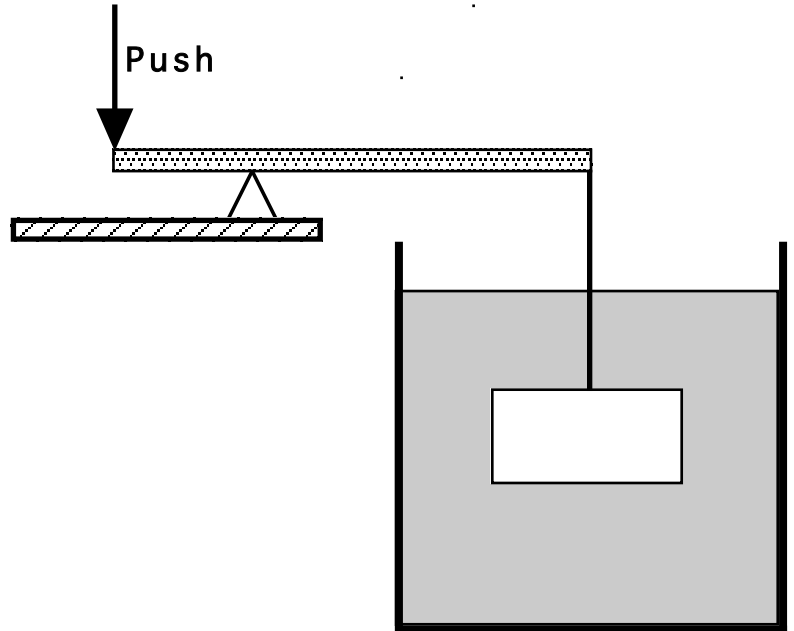
12] Find the force of the “push”, if the fulcrum is positioned $1/5^{\text{th}}$ from the left end of the board.

Given: block is 30 kg

block's density is 3 kg/m^3

density of fluid is 2 kg/m^3

board is massless

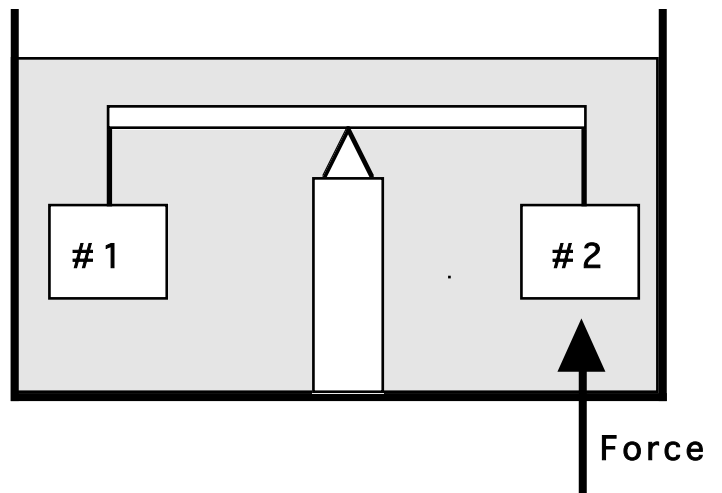


13] When the fluid is removed, what force would have to be exerted in order to keep the system static?

Given: block #1 is 1,000 kg & 0.1 m^3

block #2 is 1.0 m^3

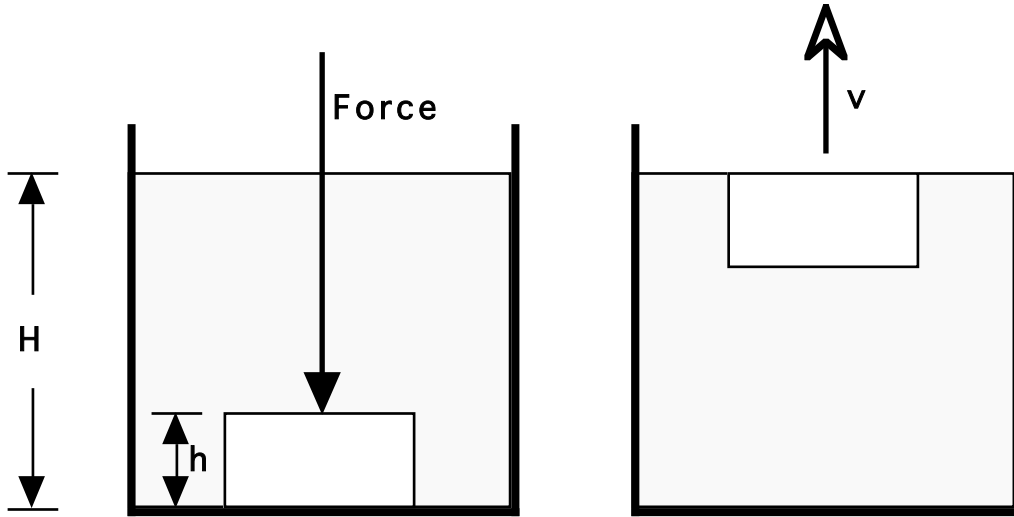
density of fluid is $1,000 \text{ kg/m}^3$



14] After the force is removed, and the block is in the position shown in the diagram to the right, how much GPE did the water lose? How much GPE did the block gain?

Find v of the block as it reaches the surface of the water.

Given: block is 1 kg & 2 m^3
density of fluid is $1,000 \text{ kg/m}^3$
 $H=12 \text{ m}$ & $h=2\text{m}$



Answers:

1. 2 kg/m^3
2. 1 kg/m^3 (if exactly half is out of the water)
3. 2 kg/m^3
4. 2 kg/m^3
5. 5,000 N
6. 5,000 N
7. 4,000 N
8. 3.33 m/s^2
9. 22,500 kg
10. 11,250 N
11. 65,000 N
12. 400 N
13. 9,000 N
14. 200,000 J, 100 J, 632 m/s

