A mass of 3kg rests on the smooth table and tied by a light cord passing over a frictionless pulley to 5kg mass hanging freely. What is the acceleration of the system which is released?

Solution:

Let:

$m1 = 3\ kg$

$m2 = 5\ \ kg$

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$a - ?$

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$a = \frac{F}{m1+m2}$

$F = m2 * g,\ were\ g = 9.8\ ^{m}/_{S^2} - acceleration\ of\ free\ fall$

$a = \frac{m2*g}{m1+m2} = \frac{5*9.8}{3+5} = 6.125\ ^{m}/_{S^2}$

**Answer: 6.125 $^{m}/_{S^2}$**