Question #58065, Physics / Other

A scuba diver is swimming under water. For the first 30 minutes, the diver swim 10 m downward. The diver stays for 20 minutes to take pictures of the coral reef. After that, the diver swim 5 m upward (it takes 30 minutes) and stay there for another 30 minutes. Finally, it takes the diver 10 minutes to go up to the surface. Sketch the graph that shows a plot of the water pressure acting on the diver as a function of time!

Solution:

Initial pressure:

$P_0 = P_A = 101325$ Pa

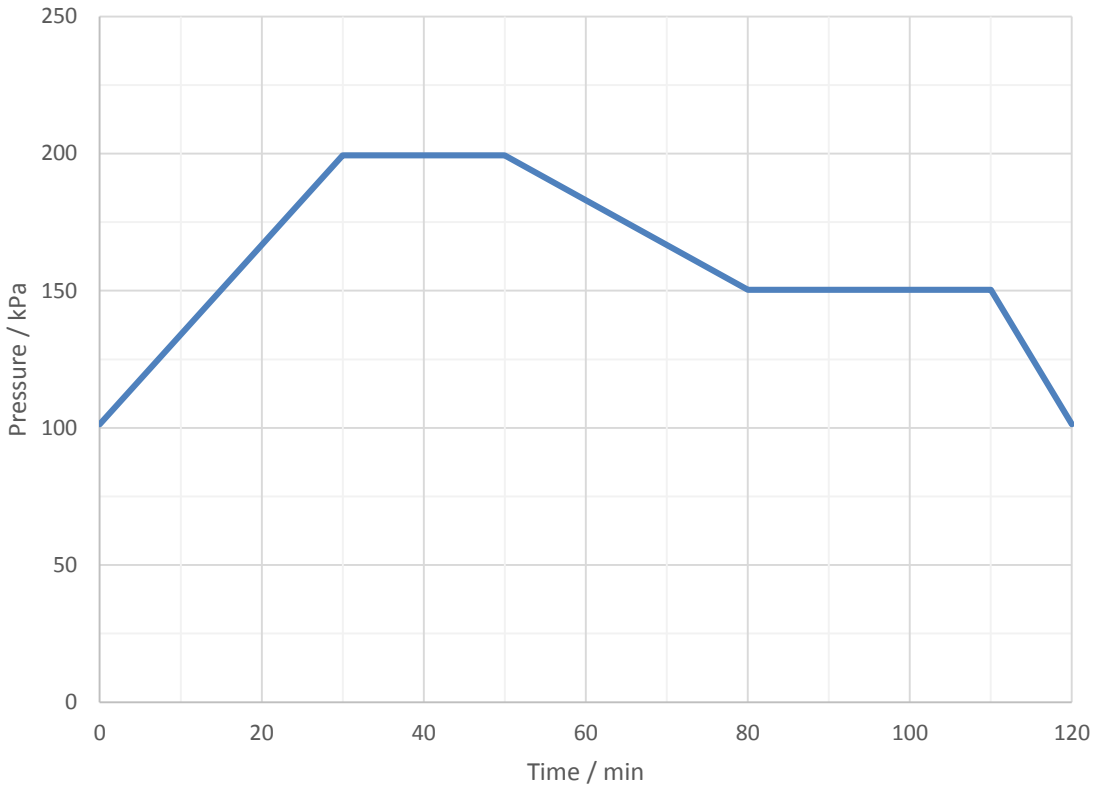
Pressure on 10 m depth:

$P = P_0 + \rho g h$;

$P_{10} = 101325 + 1000 \times 9.8 \times 10 = 199325$ Pa

Pressure on 5 m depth:

$P_5 = 101325 + 1000 \times 9.8 \times 5 = 150.325$ Pa



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