Physics II
Bungee Quiz

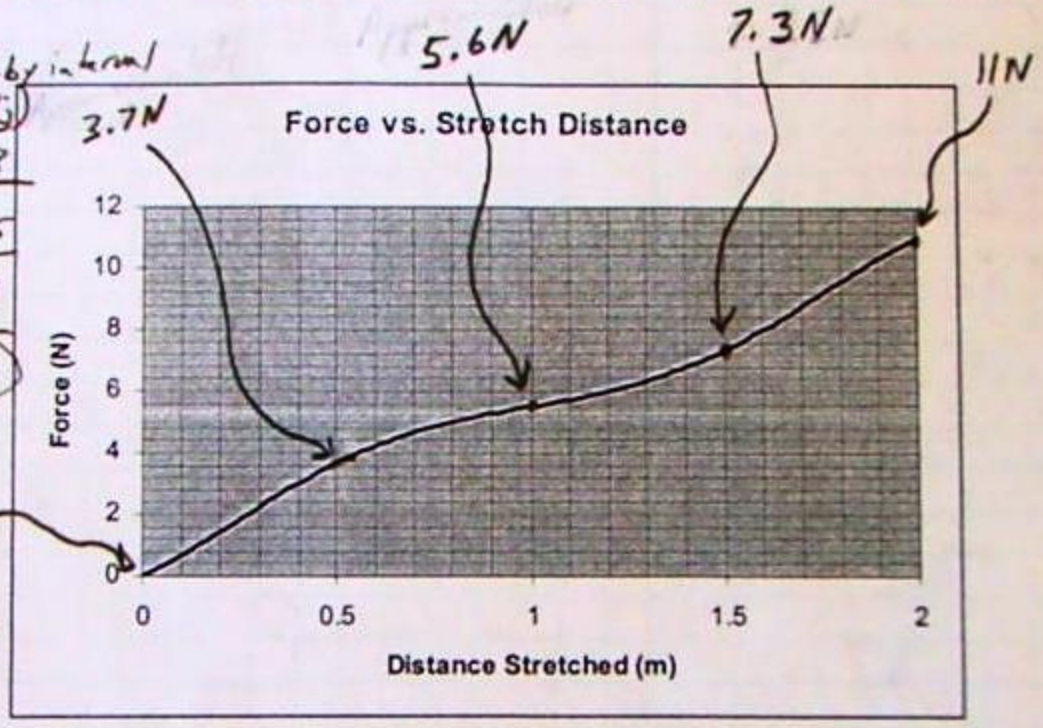
Answers/Solutions

1. The graph below shows how much force is required to stretch a bungee to a variety of distances. Use the information from this graph to create a graph of "Work vs. Distance," where "work" is the amount of work that is done in the process of stretching the bungee to each stretch distance.

Int.	Ave F (N)	Work = Fd (J)	Total work by interval (J)
0–0.5	1.85	0.93	0.93
0.5–1	4.63	2.32	3.25
1–1.5	6.45	3.23	6.48
1.5–2	9.15	4.58	11.06

This is the sum of all of these

Or



2. How far would you have to stretch this bungee in order to have done 6j of work on the bungee?

1.425 m

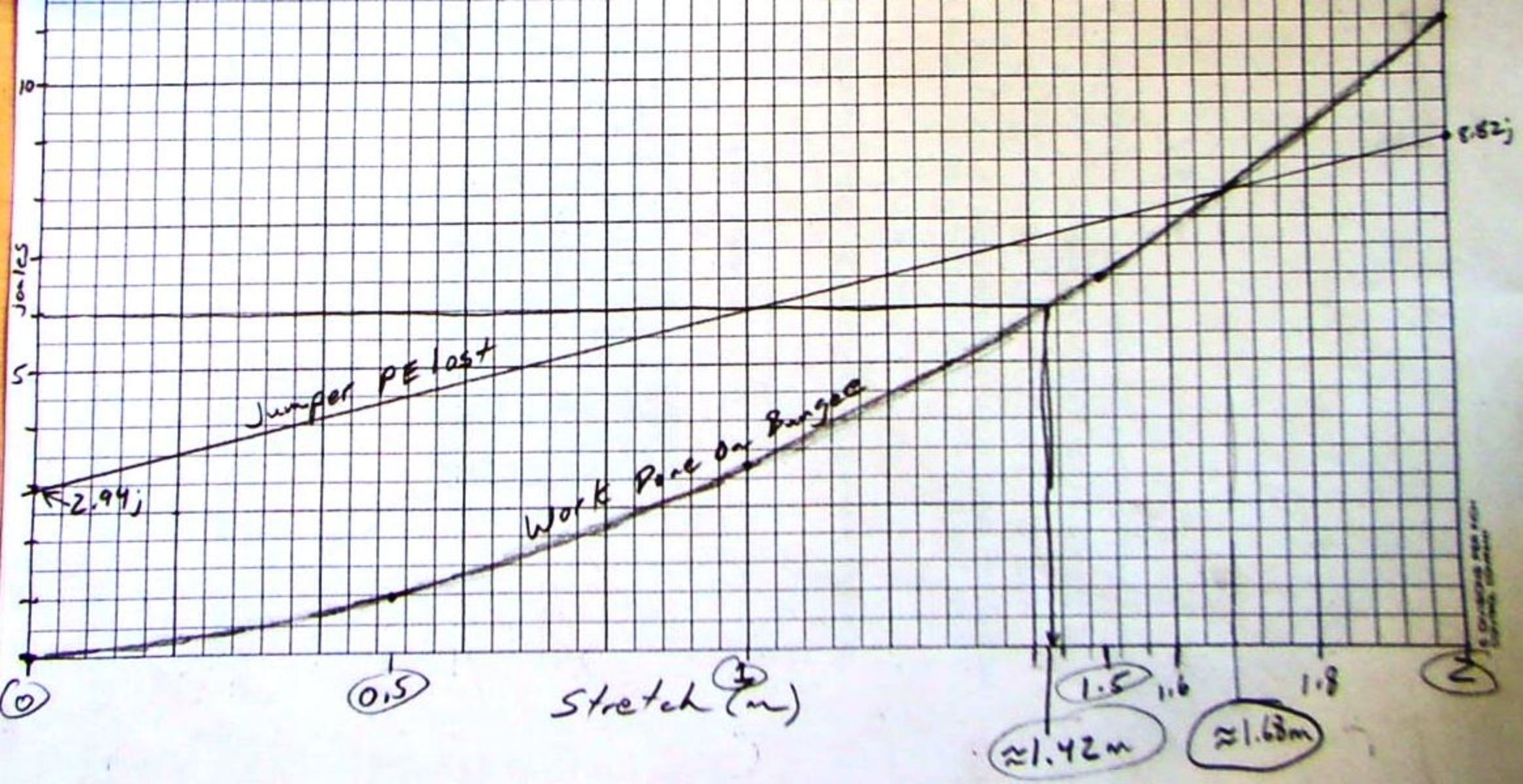
3. Suppose a 0.3 kg bungee jumper is released 1m above the bungee's zero stretch point. On your graph from #1, plot the PE that would be lost by this bungee jumper if the jumper were to fall past all of the stretch distances on your graph.

PE lost @ 0m of stretch = $0.3kg(9.8m/s^2)(1m) = 2.94j$

PE lost @ 2m of stretch = $0.3kg(9.8m/s^2)(3m) = 8.82j$

4. If the jumper is attached to the bungee, how far will the bungee stretch before the jumper reaches its low point?

1.68 m


10
5
joules
Jumper PE lost
Work Done on Bungee
2.94j
8.82j
0
0.5
1
Stretch (m)
1.5
1.6
1.8
2
≈1.42m
≈1.63m