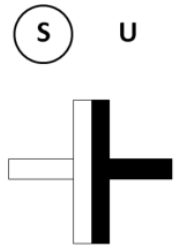
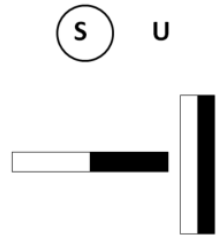
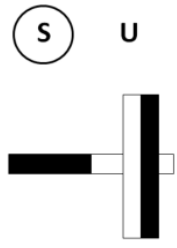
Task 1 **Points**



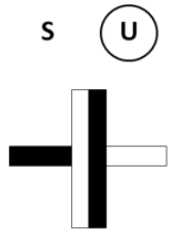
0.25



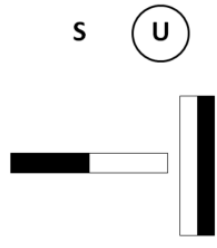
0.45



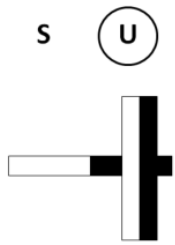
0.45



0.45



0.45



0.45

Task 2 **Points**

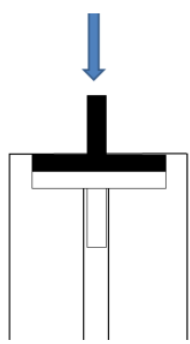
Symmetries that should be utilized in the measurements:

$F_{\uparrow\downarrow}(z) = -F_{\uparrow\downarrow}(-z)$
$F_{\uparrow\downarrow}(z) = -F_{\uparrow\uparrow}(z)$
From the two above one gets also $F_{\uparrow\uparrow}(z) = -F_{\uparrow\uparrow}(-z)$

0,6

By using the setup as it is, the whole curve can be measured by starting the measurements from three stable equilibrium points; the equilibrium point (z0) can be measured also by using the setup.

Configuration:

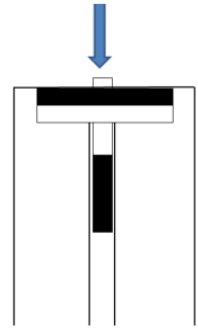


Measurements:

z0=0mm	m [g]	Δz [mm]
	0	0
	31	1
	55	2
	75	3
	97	4
	119	5
	140	6
	158	7
	171	8
	170	9
	118	10
	85	10,25
	50	10,5
	10	10,75

0,8

Configuration:

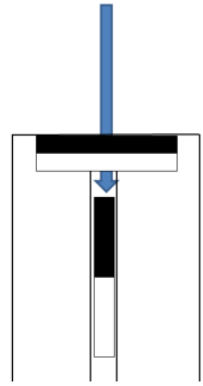


Measurements:

z0=10.8mm	m [g]	Δz [mm]
	0	0
	233	1
	538	2
	927	3
	996	3,5
	1124	4
	1154	4,5
	1213	5
	1212	5,5
	1120	6
	873	6,5
	284	7
	36	7,5

0,8

Configuration:



Measurements:

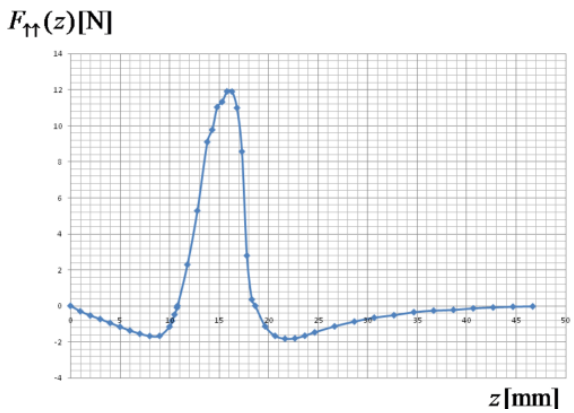
z0=18.6mm	m [g]	Δz [mm]
	0	0
	116	1
	170	2
	186	3
	184	4
	169	5
	150	6
	116	8
	89	10
	67	12
	53	14
	36	16
	27	18
	23	20
	14	22
	9	24
	5	26
	3	28

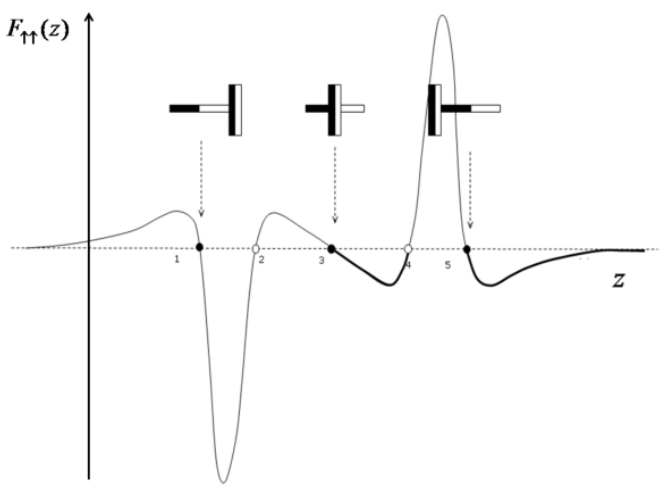
0,8

Task 3 **Points**

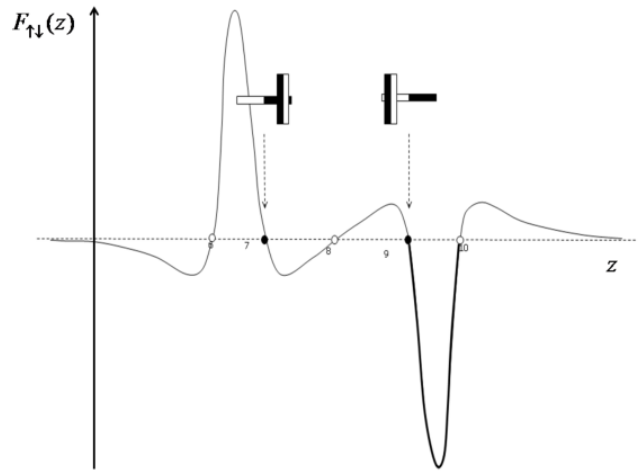
Due to symmetry, it is sufficient to plot e.g., the following graph in detail:

2



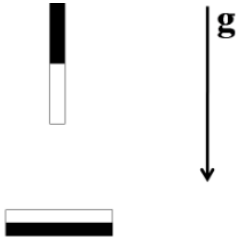


1



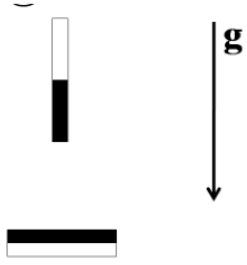
1

Task 4 **Points**



0,5

OR



Total: 10.0