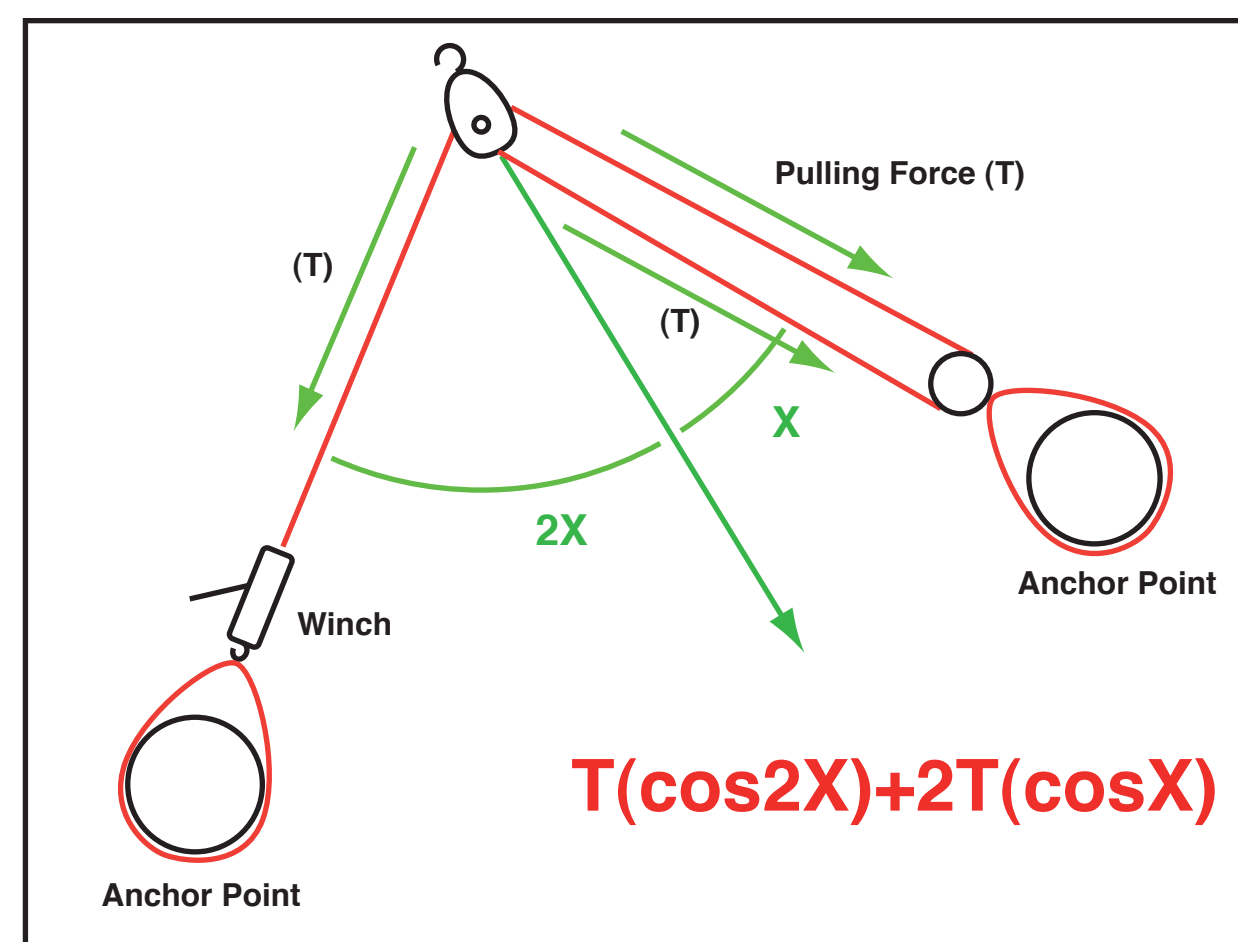
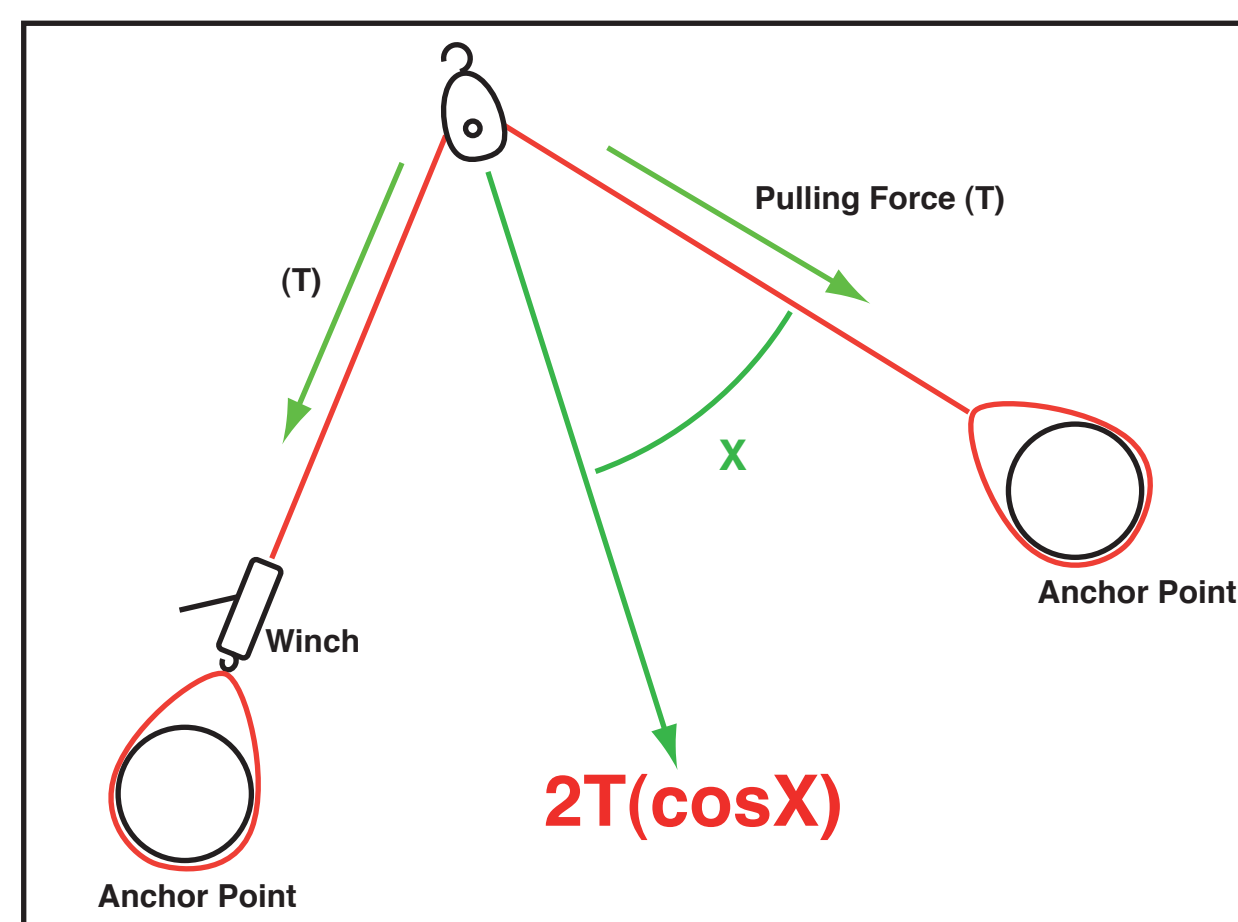
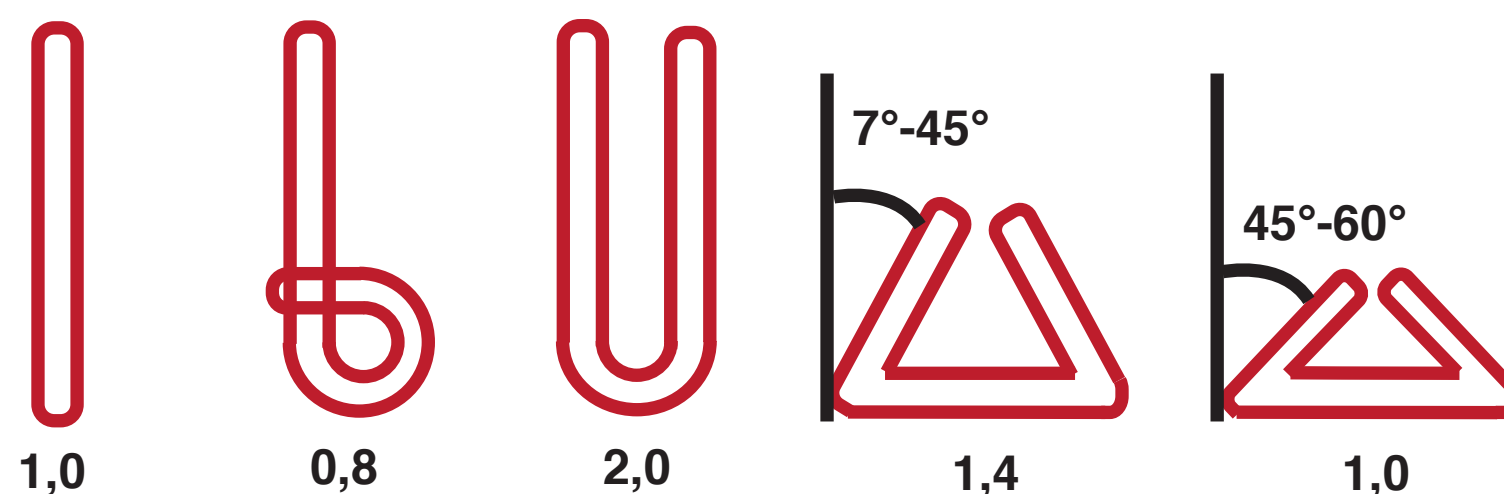


CALCULATIONS WORKING WITH WINCHES

COSINUS VALUE	
ANGLE°	Cos Value
0	1
10	1
20	0,9
30	0,9
40	0,75
50	0,6
60	0,5
70	0,33
80	0,17
90	0

ROUND SLINGS / LIFTING STRAPS



TREE STRENGTH	
∅ cm	kN
20	13
30	30
40	53
50	83
60	120

These values refer to healthy UK leaf trees with deep roots.

GRADIENT	
Degrees°	Percent %
1	1,8
2	3,4
3	5,2
4	7
5	8,8
6	10,5
7	12,3
8	14,1
9	15,8
10	19,4

Useful for road signs giving the gradient in percent.

OPERATIONAL SAFETY

All components must be intact. Take damaged components out of service immediately. Check for damage after use.

All components must be of equal or greater dimension than the pulling force of the winch.

Use adequate protective clothing.

No non-necessary personnel within 1,5 times the radius of the length of the used wire. Keep escape routes clear.

Use adequate anchor points. Use edge protection.



DISCLAIMER: The author accepts no liability for operations resulting from this document.

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