Mathematics 172

Quiz 1 Name: Key

You must show your work to get full credit.

1. Define what it means for the functions f and g to be ***proportional***. This definition should be at least partly in English and not just mathematical symbols.

There is a constant $c > 0$ such that $f = cg$

2. Assume that the weight, W, of a cable is proportional to its length, L. A cable length of a 20 meter cable is 7 kg.

Since W and L are proportional there is a constant c such that $W = cL$

(a) Give a formula for W in terms of L. $W =$ .175 L

We can find c by noting when $L = 2$, $w = 7$

So $7 = c40$

$c = \frac{7}{40} = .175$

(b) What is the weight of a 100 meter cable? Weight is 17.5 kg

Let $L = .175(100) = 17.5$

(c) If a cable weighs 50 kg, then how long is it? Length is 285.7 meters.

Let $W = 50$ and solve for L.

$50 = .175L$

$L = \frac{50}{.175} = 285.7$