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 meters cable is 7 kg.

Since W and L are proportional there is a constant c such that $W = cL$. Since $L = 20$ implies $W = 7$ we have $7 = c(20)$

$$c = \frac{7}{20} = .35$$

(a) Give a formula for W in terms of L. $W =$ $.35L$ kg

(b) What is the weight of a 100 meter cable? Weight is 35 kg

Let $L = 100$, then

$$W = .35(L) = .35(100) = 35$$

(c) If a cable weighs 50 kg, then how long is it? Length is 142.86 m

Use $W = 50$ in $W = .35L$ to get

$$50 = .35L$$

$$L = \frac{50}{.35} = 142.86$$