Worded Direct Proportion Problems

The weight of a piece of wire is directly proportional to its length. A piece of wire is 25 cm long and has a weight of 6 grams. Another piece of the same wire is 30 cm long. Calculate the weight of the 30 cm piece of wire.

In a spring, the tension, T Newtons, is directly proportional to its extension, x cm. When the tension is 300 Newtons, the extension is 12 cm.
(a) Find a formula for T in terms of x.
(b) Calculate the tension, in Newtons, when the extension is 15 cm.

The time, T seconds, it takes a kettle to boil some water is directly proportional to the mass of water, m kg, in the kettle. When $m = 250$, $T = 300$. Find T when $m = 400$.

In a factory, chemical reactions are carried out in cylindrical containers. The time, T minutes, the chemical reaction takes is directly proportional to the square of the radius, R cm, of the cylindrical container. When $R = 12, T = 72$. Find the value of T when $R = 15$.

The amount of clay used to make a statue is directly proportional to the cube of the height of the statue. A statue which is 10 cm tall requires 500 cm^3 of clay. How much clay is required for a similar statue which is twice as tall?

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