

Question #54170, Physics / Other |

A gremlin is a tiny mythical creature often blamed for mechanical failures. Suppose for a moment that a shrewd physicist catches one such gremlin and makes it work for her instead of against her. She determines that the gremlin can produce 24 milliwatts of power. How many gremlins are required to produce 24,000 megawatts of power?

**Answer:**

If one gremlin produces 24 mW of power, it means that 24mJ of work done per second. From another hand, 24 MW correspond 24 MJ per second. Therefore, the following number of gremlins is needed to do this work:

$$N = 24 \text{ mJ} / 24 \text{ MJ} = 1 \times 10^{-3} / 1 \times 10^6 = 10^{-9} = 1 \text{ 000 000 000 of Gremlins}$$

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