

Answer on Question #63881 – Math – Algebra

Question

According to Hooke's law, the force F (in pounds) required to stretch a certain spring x inches beyond its natural length is given by

$$F = (4.5)x.$$

If

$$10 \leq F \leq 18,$$

what are the corresponding values for x ?

Solution

If $F = 4.5x$ and $10 \leq F \leq 18$, then

$$10 \leq 4.5x \leq 18$$

Dividing by 4.5 through

$$10/4.5 \leq 4.5x/4.5 \leq 18/4.5,$$

$$20/9 \leq x \leq 4.$$

Here $20/9 \approx 2.22$.

Answer: $20/9 \leq x \leq 4$.