

# HOOKE'S LAW

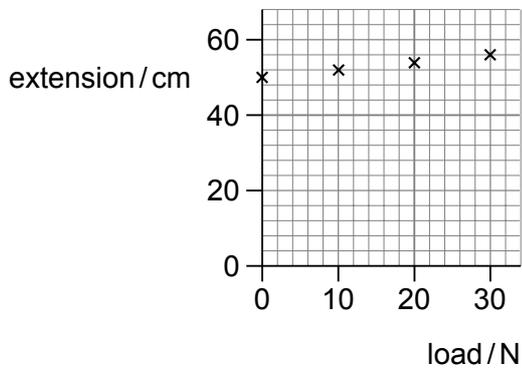
The table below shows the length of a wire as the load on it is increased.

1

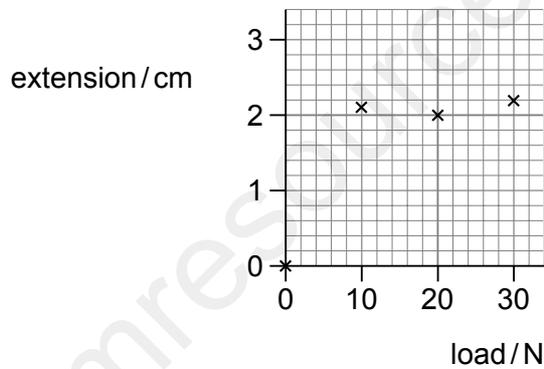
load / N	0	10	20	30
length / cm	50.0	52.1	54.1	56.3

Which graph correctly shows the extension of the wire plotted against load?

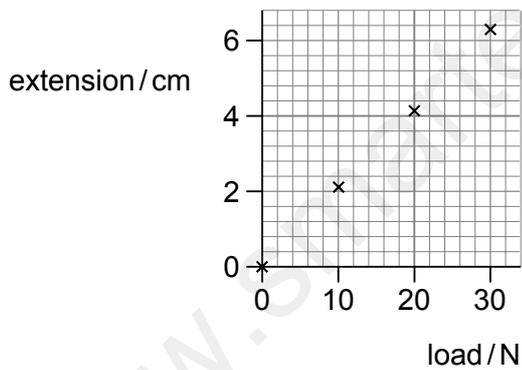
A



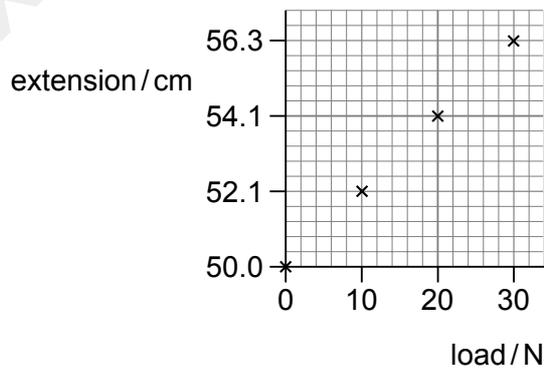
B



C



D

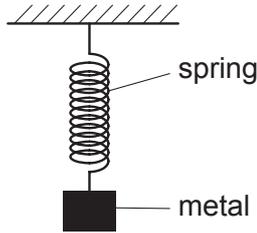


2

A spring is stretched by hanging a piece of metal from it.

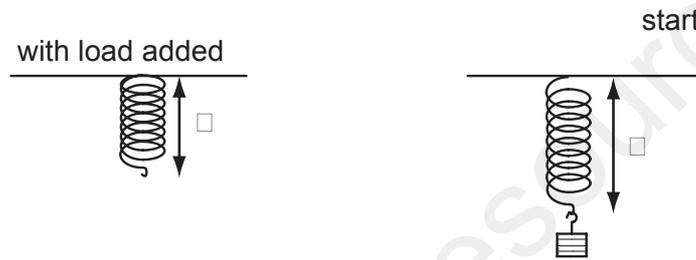
What is the name given to the force that stretches the spring?

- A friction
- B mass
- C pressure
- D weight



3

A student carries out an experiment to plot an extension / load graph for a spring. The diagrams show the apparatus at the start of the experiment and with a load added.



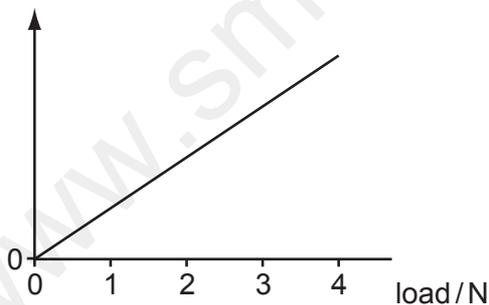
What is the extension caused by the load?

- A  $x$
- B  $y$
- C  $y + x$
- D  $y - x$

4

A student adds loads to an elastic cord. He measures the length of the cord for each load.

He then plots a graph from the results.

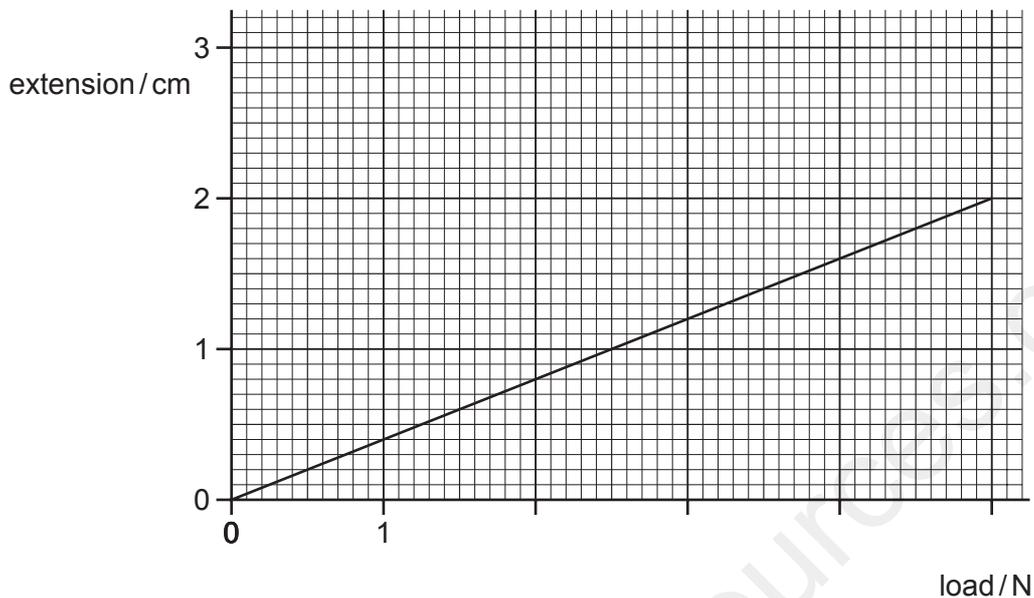


Which length is plotted on the vertical axis?

- A measured length
- B original length
- C (measured length – original length)
- D (measured length + original length)

The extension/load graph for a spring is shown. The unloaded length of the spring is 15.0 cm.

**5**



When an object of unknown weight is hung on the spring, the length of the spring is 16.4 cm.

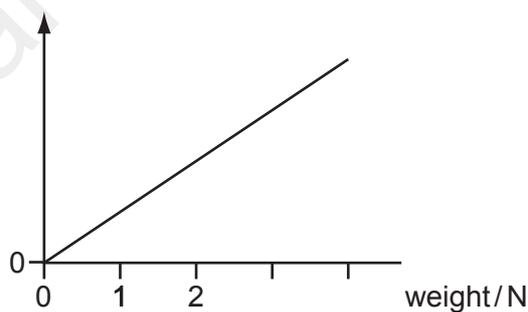
What is the weight of the object?

- A** 0.55 N      **B** 0.67 N      **C** 3.5 N      **D** 4.1 N

**6**

A student adds weights to an elastic cord. He measures the length of the cord for each weight.

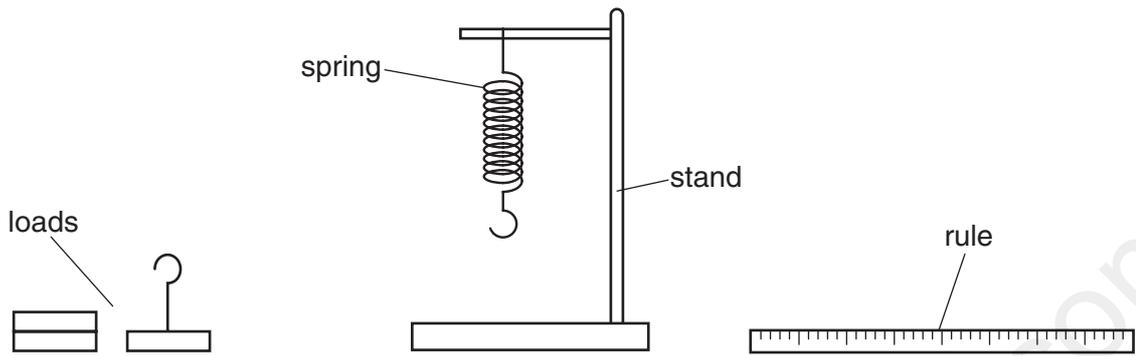
He then plots a graph from the results, as shown.



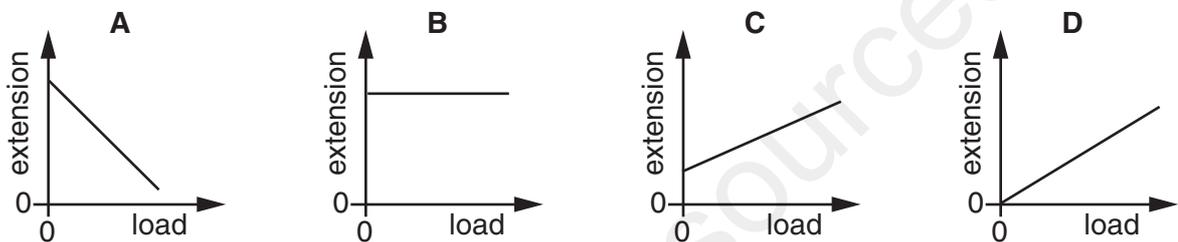
Which length has he plotted on the vertical axis?

- A** measured length  
**B** original length  
**C** (measured length – original length)  
**D** (measured length + original length)

**7** A spring is suspended from a stand. Loads are added and the extensions are measured.



Which graph shows the result of plotting extension against load?



**8** An experiment is carried out to measure the extension of a rubber band for different loads.

The results are shown below.

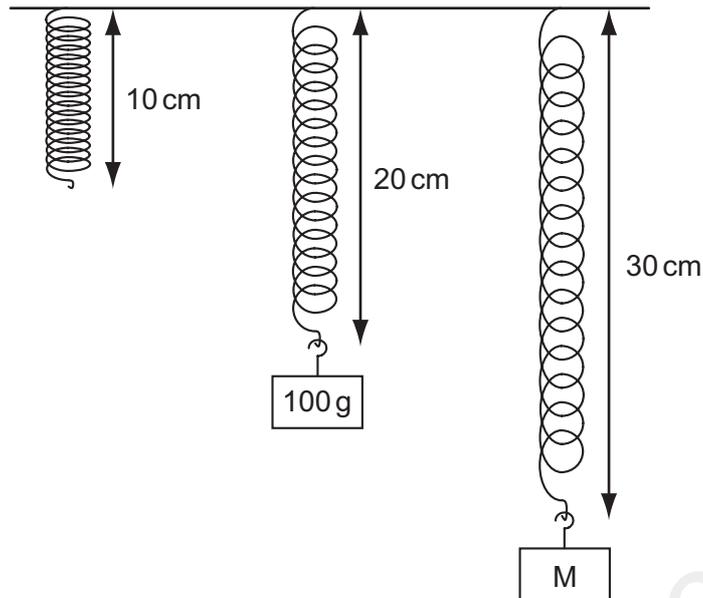
load / N	0	1	2	3
length / cm	15.2	16.2		18.6
extension / cm	0	1.0	2.1	3.4

Which figure is missing from the table?

- A** 16.5      **B** 17.3      **C** 17.4      **D** 18.3

Objects with different masses are hung on a 10 cm spring. The diagram shows how much the spring stretches.

9



The extension of the spring is directly proportional to the mass hung on it.

What is the mass of object M?

- A** 110g      **B** 150g      **C** 200g      **D** 300g

The table shows the length of a wire as the load on it is increased.

10

load / N	0	10	20	30
length / cm	50.0	52.1	54.1	56.3

Which subtraction should be made to find the extension caused by the 20 N load?

- A** 54.1 cm – 0 cm  
**B** 54.1 cm – 50.0 cm  
**C** 54.1 cm – 52.1 cm  
**D** 56.3 cm – 54.1 cm

11

An experiment is carried out to measure the extension of a rubber band for different loads.

The results are shown below.

load / N	0	1	2	3	
length / cm	15.2	16.2		18.6	
extension / cm	0	1.0	2.1		3.4

Which figure is missing from the table?

- A** 17.2      **B** 17.3      **C** 17.4      **D** 17.6

**12** An experiment is carried out to measure the extension of a rubber band for different loads.

The results are shown below.

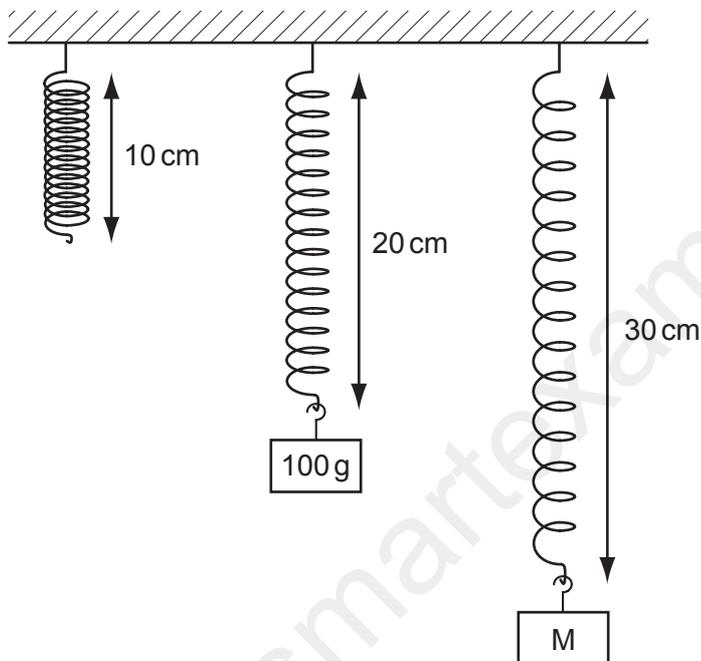
load / N	0	1	2	3
length / cm	15.2	16.2		18.6
extension / cm	0	1.0	2.1	3.4

Which figure is missing from the table?

- A** 17.2      **B** 17.3      **C** 17.4      **D** 17.6

---

**13** Objects with different masses are hung on a spring. The diagram shows how much the spring stretches.



The extension of the spring is directly proportional to the mass hung on it.

What is the mass of object M?

- A** 110 g      **B** 150 g  
**C** 200 g      **D** 300 g

---

**14** An experiment is carried out to measure the extension of a rubber band for different loads.

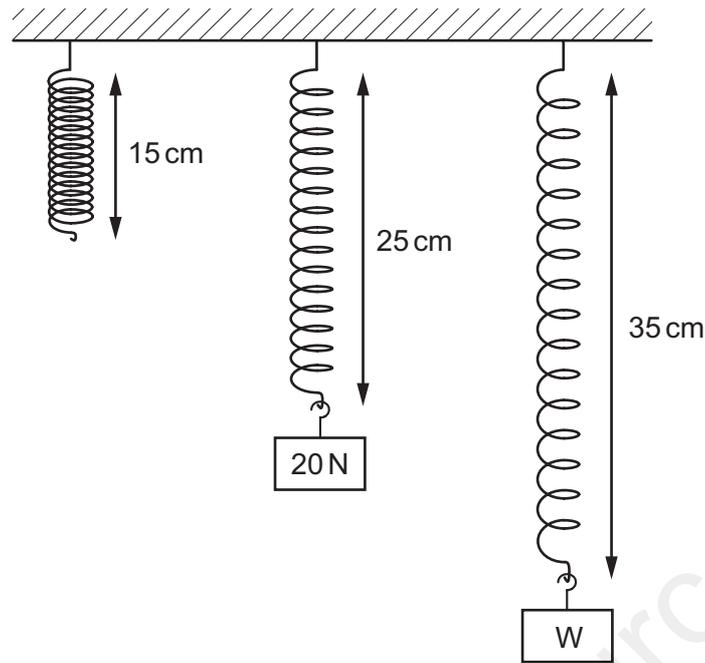
The results are shown below.

load / N	0	1	2	3
length / cm	15.2	16.2		18.6
extension / cm	0	1.0	2.1	3.4

Which figure is missing from the table?

- A** 17.2      **B** 17.3      **C** 17.4      **D** 17.6

- 15** Different weights are hung from a spring. The diagram shows the original length of the spring, and the lengths when different weights are added.

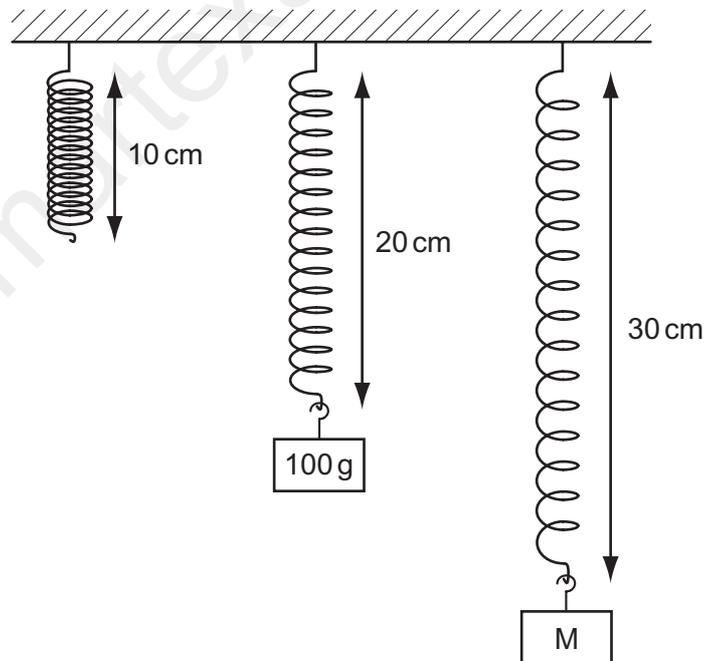


The extension of the spring is directly proportional to the weight hung from it.

What is the weight of W?

- A** 30 N      **B** 35 N      **C** 40 N      **D** 45 N

- 
- 16** Objects with different masses are hung on a spring. The diagram shows how much the spring stretches.



The extension of the spring is directly proportional to the mass hung on it.

What is the mass of object M?

- A** 110 g      **B** 150 g      **C** 200 g      **D** 300 g