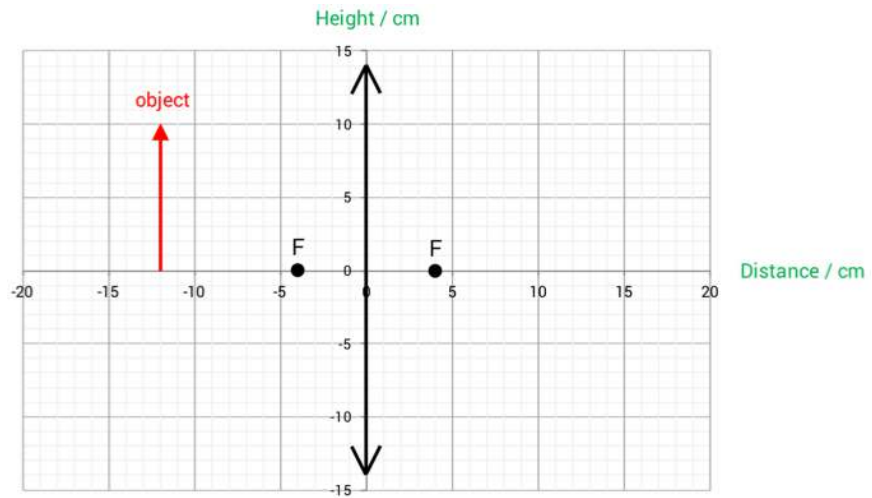| 0	1

A student is experimenting with a lens in an optics lab. The setup she is using at one point in her investigation is as shown below.

0	1	.	1

State the type of lens which the student is using.

_____

[1 mark]

0	1	.	2

By drawing two (or more) appropriate rays onto the above diagram, determine the location of the image of the object produced by the lens.

[3 marks]

0	1	.	3

Is the image produced real or virtual? Explain your answer.

_____

[2 marks]

0	1	.	4

By measuring the sizes of the object and image using the above graph, show that this lens is producing a magnification of 0.5.

[2 marks]

0	1	.	5

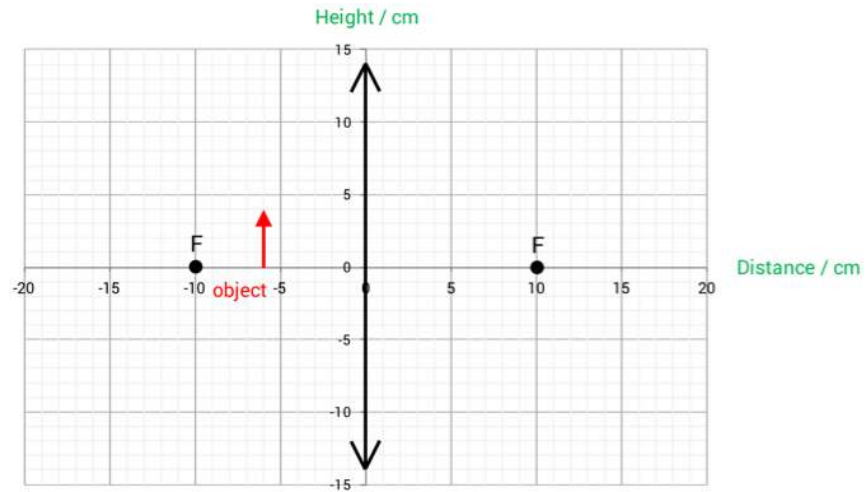Theory suggest that the magnification of a lens can also be determined by using the following equation:

$$\text{Magnification} = \frac{\text{Distance between lens and image}}{\text{Distance between lens and object}}$$

Show that a magnification of 0.5 is also calculated using this equation.

[1 mark]

| 0 | 2 |

Later, the same student investigates a lens with a longer focal length.

| 0 | 2 | . | 1 |

Describe a method for measuring the focal length of a lens such as the one shown above.

_____

_____

[2 marks]

| 0 | 2 | . | 2 |

By drawing two (or more) appropriate rays onto the above diagram, determine the location of the image of the object produced by this lens.

[3 marks]

| 0 | 2 | . | 3 |

The image formed can be described as virtual, upright and magnified. Explain the meaning of each of these terms.

_____

_____

[3 marks]

| 0 | 2 | . | 4 |

The student later uses a lens which looks like this:

Describe the nature of the image which would be formed by this lens.

_____

[2 marks]