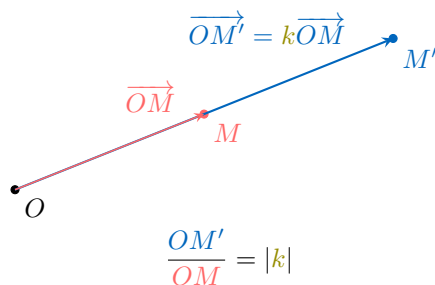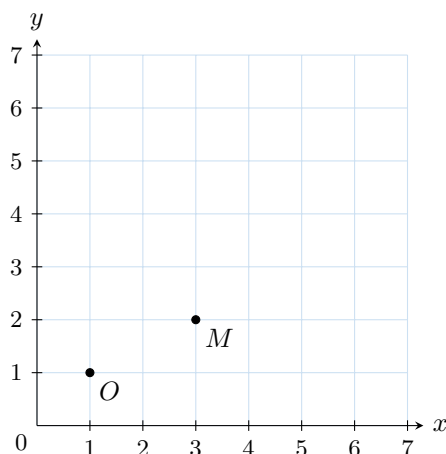# HOMOTHETY

A DEFINITIONS

Definition Homothety of a Point

The **homothety** of point M with center O and scale factor k is the point M' such that M' is the translation of point O by the vector $k\overrightarrow{OM}$.

$$\overrightarrow{OM'} = k\overrightarrow{OM}$$

M'

$\overrightarrow{OM}$

M

O
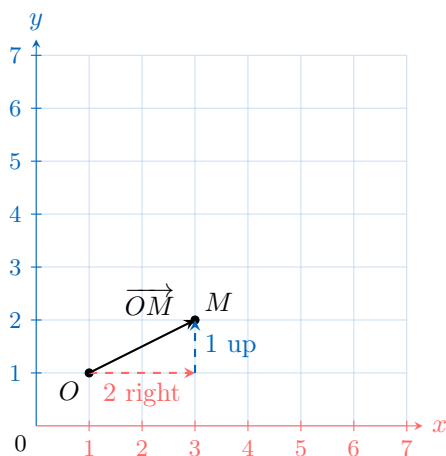
$$\frac{OM'}{OM} = |k|$$

Ex: Find the coordinates of the image of point M under a homothety with center O and scale factor $k = 2$.
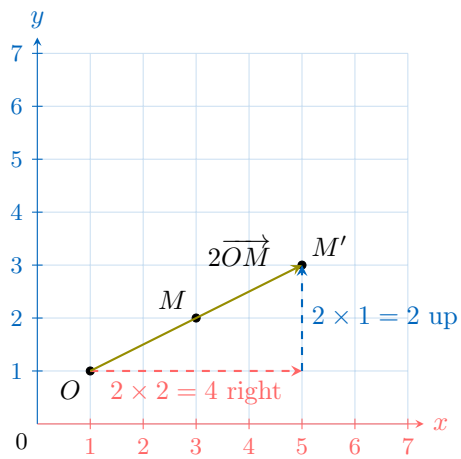

Answer:

- $\overrightarrow{OM}$:

- $\overrightarrow{OM'} = 2\overrightarrow{OM}$:

- $M'(5, 3)$

Definition Homothety

The **homothety** of a figure with center O and scale factor k is the homothety of all its points.

Ex: The figure A' is the image of figure A under a homothety with center O and scale factor 2.