

Conditions

If $f = (1, 2), (2, 3), (3, 4), (4, 5)$,
 $g = (1, -2), (3, -3), (5, -5)$, and
 $h = (1, 0), (2, 1), (3, 2)$,

find the following and state the domain

2d. f / h

2f. $g * f * h$

Solution

Notice: We can consider the question about the domain only if these functions are from some subsets of \mathbb{R} . If their range is in \mathbb{R}^2 (as you wrote pairs of numbers), we have no information about the domain.

So, let's assume that:

$$f(1) = 2; f(2) = 3; f(3) = 4; f(4) = 5.$$

$$g(1) = -2; g(3) = -3; g(5) = -5$$

$$h(1) = 0, h(2) = 1, h(3) = 2$$

1)

$\frac{f}{g}$ is defined only for points 1 and 3 (domain: 1,3)

$$\frac{f}{g}(1) = \frac{2}{-2} = -1$$

$$\frac{f}{g}(3) = -\frac{4}{3}$$

2)

$f \cdot g \cdot h$ is defined only for points 1 and 3 (domain: 1,3)

$$f \cdot g \cdot h(1) = 2 \cdot (-2) \cdot 0 = 0$$

$$f \cdot g \cdot h(3) = 4 \cdot (-3) \cdot 2 = -24$$