

Homework Domain & Range

Given the patterns seen above, can you predict the domain/range of an image given a pre-image domain/range? Let's try:

Side note about notation:
 ** Discrete values must be represented by a list of values written in this notation: { 1, 5, 7 }
 Interval notation: Represents the domain and range with a pair of numbers. [] for inclusive (\leq or \geq) and () are for exclusive ($<$ or $>$).
 Exam p69 $x \le 12$ equivalent to $[6, 12]$
 Note: -4 and 4 are always exclusive

1. Given a relation composed of points A(2,5), B(1, -6), and C(4, 7),

a. State the domain and range of the relation:

D: {1, 2, 4} R: {-6, 5, 7}

b. State the domain and range of the image when the relation is:

i. Translated right 2 and down 3 :

D: {3, 4, 6} R: {-9, 2, 4}

ii. Reflected in the x-axis:

D: {1, 2, 4} R: {-7, -5, 6}

iii. Reflected in the y-axis:

D: {-4, -2, -1} R: {-6, 5, 7}

iv. Reflected in the line $y=x$:

D: {-6, 5, 7} R: {1, 2, 4}

v. Rotated 90° :

D: {-7, -5, 6} R: {1, 2, 4}

vi. Dilated by a factor of 7 with a center of (0, 0):

D: {-7, 14, 28} R: {-42, 35, 49}

2. Given a line segment with endpoints (0,4) inclusive and (3,0) exclusive.

a. State the domain and range of the segment. D: [0, 3) R: (0, 4]

b. State the domain and range of the image when the relation is:

i. Translated right 2 and down 3 :

D: [2, 5)
R: (-3, 1]

iv. Reflected in the line $y=x$:

D: (0, 4]
R: [0, 3)

ii. Reflected in the x-axis:

D: [0, 3)
R: (0, -4]

v. Rotated 90° :

D: [-4, 0)
R: [0, 3)

iii. Reflected in the y-axis:

D: (-3, 0]
R: (0, 4]

vi. Dilated by a factor of 7 with a center of (0, 0):

D: [0, 21)
R: (0, 28]