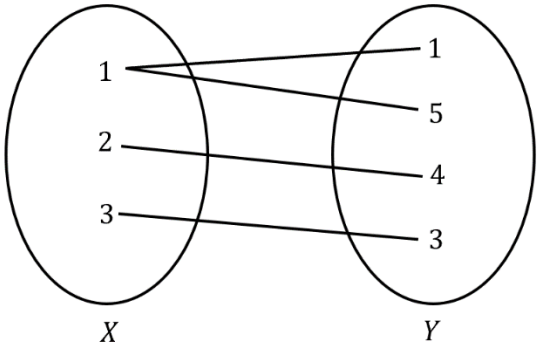
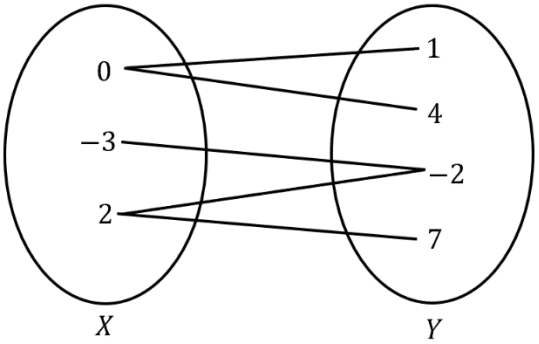
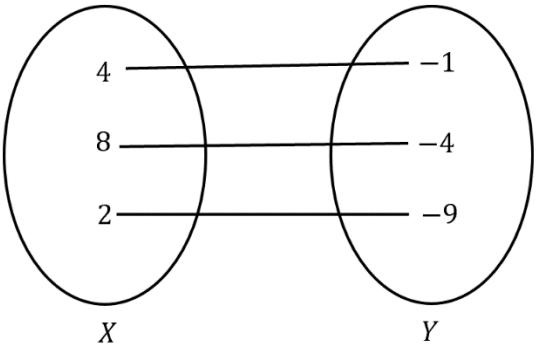
one-to-many



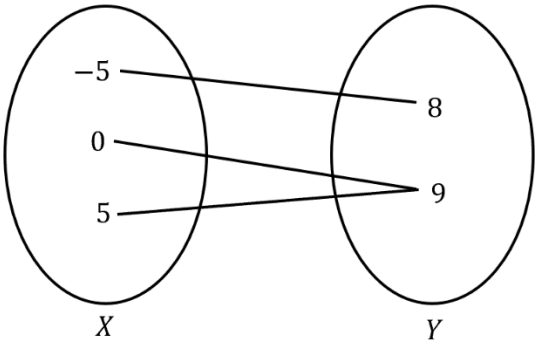
many-to-many



one-to-one



many-to-one



Functions Practice Questions

1. In the given ordered pair (4, 6); (8, 4); (4, 4); (9, 11); (6, 3); (3, 0); (2, 3) find the following relations. Also, find the domain and range.

(a) Is two less than

(b) Is less than

(c) Is greater than

(d) Is equal to

5. Determine the domain and range of the relation R defined by

R = {x + 2, x + 3} : x ∈ {0, 1, 2, 3, 4, 5}

The general expression for function transformations is typically stated as:
y = a * f[b(x - h)] + k
Where:

- **a** represents the vertical stretch or compression factor.
- **b** represents the horizontal stretch or compression factor.
- **h** represents the horizontal shift (positive for right and negative for left).
- **k** represents the vertical shift (positive for up and negative for down).

$g(x)=3(x-2)^2+4$ from our previous discussion can be broken down into these transformation parameters:

$a=3$ (vertical stretch by a factor of 3).
$b=1$ (no horizontal stretch/compression).
$h=2$ (horizontal shift 2 units to the right).
$k=4$ (vertical shift 4 units upward).

Graphing Calculator: https://www.desmos.com/calculator