

A and G 1. Class work 25.
Algebra.



Functions.



x	2	3	4	5	6	7
y	6	9	12	15	18	?

x	5	6	9	10	11	14
y	0	1	4	0	1	?

We established a relationship between two sets – we can describe a rule, by which each element of one set (domain) can be associated with one element of another set (codomain).

$$y = f(x)$$

What is the rule for the function in the first table, second?

What is a domain and codomain for both functions?

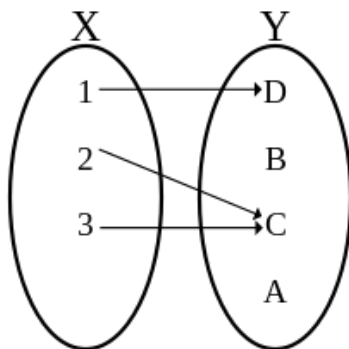
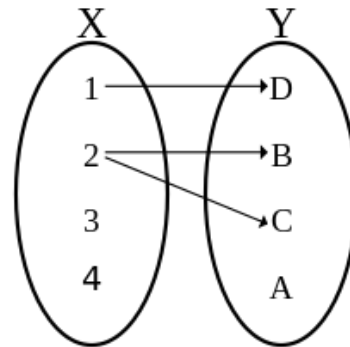
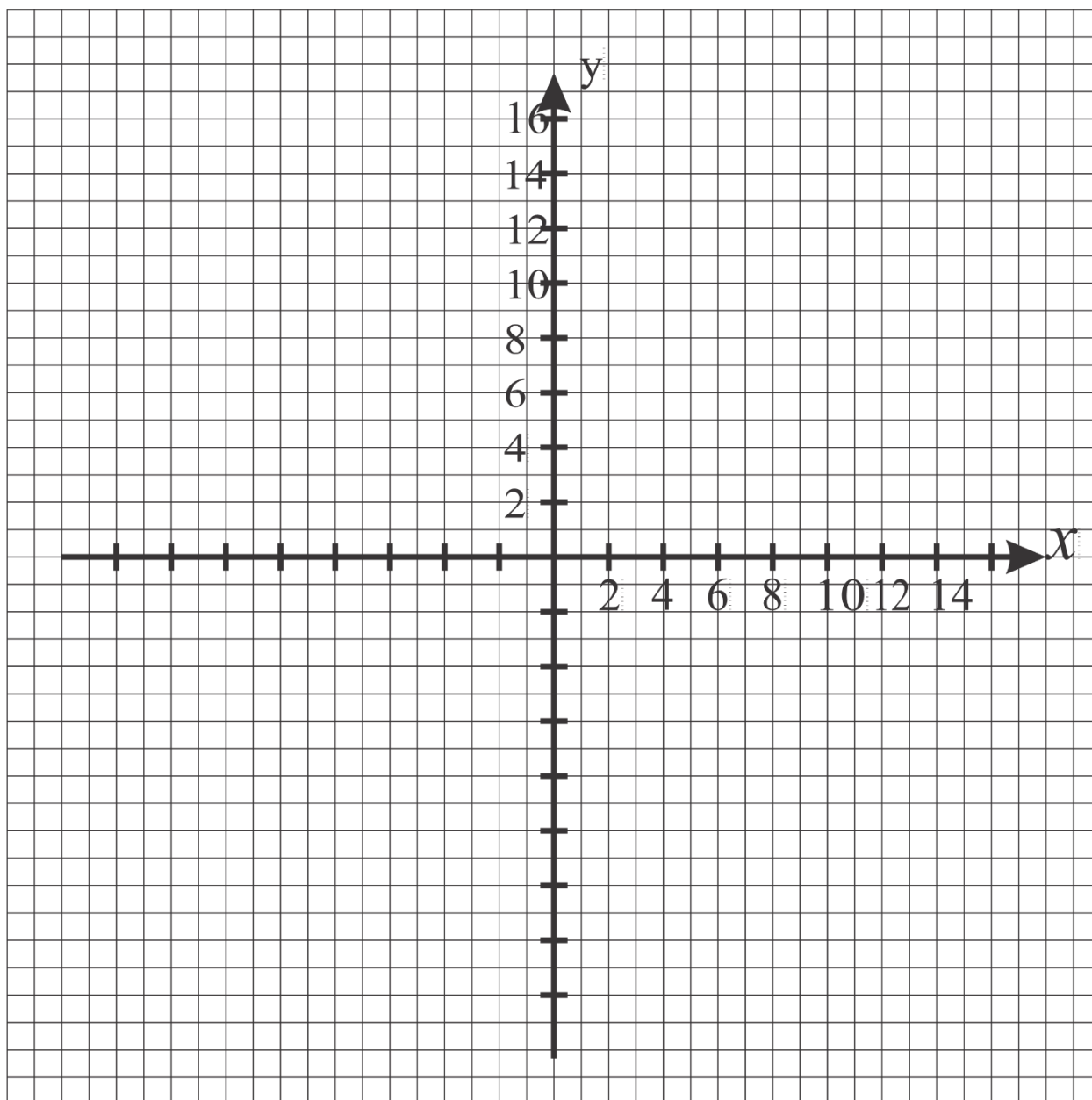


Diagram of a function, with domain $X=\{1, 2, 3\}$ and codomain $Y=\{A, B, C, D\}$, which is defined by the set of ordered pairs $\{(1,D), (2,C), (3,C)\}$. The image/range is the set $\{C,D\}$. (By Bin im Garten - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=12604955>)



This diagram, representing the set of pairs $\{(1,D), (2,B), (2,C)\}$, does *not* define a function. One reason is that 2 is the first element in more than one ordered pair, $(2, B)$ and $(2, C)$, of this set. Two other reasons, also sufficient by themselves, is that neither 3 nor 4 are first elements (input) of any ordered pair therein. By Bin im Garten - Own work, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=12526713>



Draw a coordinate system and let's try to do some functions.

$$\frac{2x-3}{x-6} = \frac{2x-1}{x-2};$$

$$(2x-3)(x-2) = (2x-1)(x-6); \quad 2x^2 - 4x - 3x + 6 = 2x^2 - 12x - x + 6; \quad -7x + 6 = -13x + 6; \quad x = 0$$

1. Prove that for any natural number n , $n^3 - n$ is divisible by 6.
2. Evaluate each

a. $0.6 \cdot \frac{2}{3}$

$: (-0.08)$

$+ 3\frac{12}{17}$

$\cdot \left(-3\frac{1}{11}\right)$

?

b. $\frac{4}{5} \cdot \frac{3}{5}$

$: (-1.2)$

$- \left(-7\frac{1}{5}\right)$

$- 11.8$

?

c. $-0.25 \cdot \frac{4}{7}$

$- 2\frac{6}{7}$

$: 0.02$

$+ 155$

?

d. $(0.6)^2$

$: 0.04$

$- \frac{3}{5}$

$- 4.4$

?