

Transformations of Functions from Descriptions Part I

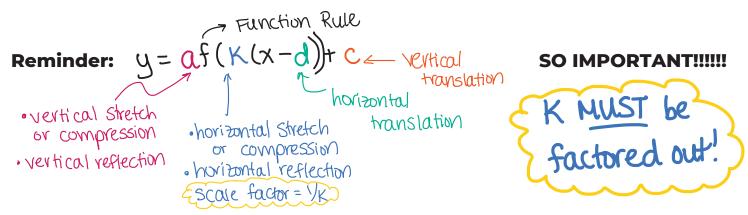
Video Notes

<u>Video Link</u>

Transformations of Functions from Descriptions Part II

Background Knowledge:

Transformations of Functions Part V



Find the equation of f(x), an absolute value function, after performing the transformations listed below on the parent function. Determine the domain and range of f(x).

Powert Function: f(x) = |x|

- Reflection in the x-axis
 - Translation three units up and four units to the left $(0,0) \rightarrow (-4,3)$
- ✓ A vertical compression with a scale factor of ½
- A horizontal stretch with a scale factor of 3

$$y = 0f(K(x-d)) + C$$

$$0 = -\frac{1}{2} | K = \frac{1}{3} | d = -4 | C = 3$$

$$absolute value$$

$$f(x) = -\frac{1}{2} | \frac{1}{3}(x+4) | + 3$$

$$f(x) = -\frac{1}{2} | \frac{1}{3}x + \frac{4}{3} | + 3$$

S.S. = 3
$$\frac{1}{K} = 3 \quad \text{do the reciprocal} \quad K = \frac{1}{3}$$

$$\text{Domain:} \quad \text{Exell} \quad \text{or} \quad \text{coso}$$

$$\text{Range:} \quad \text{coso}$$

$$\text{coso}$$

Find the equation of g(x), a square root function, after performing the following transformations listed below on the parent function. Determine the domain and range of g(x). Povert or who find $f(x) = \sqrt{x}$

- Reflection in the y-axis
- Translation two units down and five units right
- A horizontal stretch with a scale factor of 2.5

$$y = af(R(x-d)) + C$$

$$0 = 1 \quad K = -\frac{2}{5} \quad d = 5 \quad c = -2$$

$$g(x) = \sqrt{-\frac{2}{5}(x-5)} - 2$$

$$g(x) = \sqrt{-\frac{2}{5}x+2} - 2$$

Domain: EXER XE5 1 = 2.5 = 21 = 5

Range: $\{y \in \mathbb{R} \mid y \ge -2\}$