function transformation form

- $g(x) = \pm af(\pm b(x-h)) + k$
- transformations include

1. – reflections over the y-axis (horizontally)
2. – stretch or compression horizontally
3. – translate it horizontally

horizontal

Stretch: $1/x$ (b)

Compress: $x/1$ (b)

+ if B=3, then it stretches by 1/3

$g(x) = \pm af(\pm b(x-h)) + k$

- a: reflection over the x-axis (4); stretches vertically by factor of a (5)
- b: this $\pm$ reflects the function horizontally (1); Stretches the function horizontally by a factor of $1/b$ (inverse of b) (2)
- h: moves the function Left or right opposite of what it says (3)
- k: translate or move the function up or down (6)

4. reflections over the x-axis
5. stretch or compress vertically
6. translates (moves) up or down

Examples

1: $g(x) = \pm af(\pm b(x-h)) + k$

$= g(x) = f(-(x-3)) + 2$

8: $g(x) = \pm af(\pm b(x-h)) + k$ (a: 1/3, b: +, k: 5)

$= g(x) = f(\frac{1}{3}(x)) + 5$

11: $g(x) = \pm af(\pm b(x-h)) + k$ (a: –, b: +, b: 1/2, k: 11)

$= g(x) = -f(-\frac{1}{2}(x)) + 11$

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