

BCAD

$$y = a f [b(x-c)] + d$$

Key points of $y = \sqrt{x}$

x	y
0	0
1	1
4	2
9	3

1) State the transformations to the parent function $f(x) = \sqrt{x}$ in the order that you would do them.

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a) $g(x) = 2\sqrt{x+1} - 3$

b) $g(x) = 3\sqrt{\frac{1}{2}(x-5)} + 4$

c) $g(x) = -\frac{1}{2}\sqrt{-3(x)} - 6$

0 0 →

1 1 →

4 2 → (3, 1)

B —

C (x-1, y)

A (x-1, 2y)

D (x-1, 2y-3)

(2x, y)

(2x+5, y)

(2x+5, 3y)

(2x+5, 3y+4)

(2x+5, 3y+4)

B $(\frac{x}{-3}, y)$

C —

A $(\frac{x}{-3}, -\frac{1}{2}y)$

D $(\frac{x}{-3}, -\frac{1}{2}y-6)$

$$f(x) = \sqrt{x}$$

$$c) g(x) = -4\sqrt{-2(x-3)} + 1$$

bcad
-x by -2
right 3

x	y	x	y
0	0		
1	1		
4	2		

$$\left(\frac{x}{-2} + 3, -4y + 1\right)$$

B: $\frac{x}{-2}$

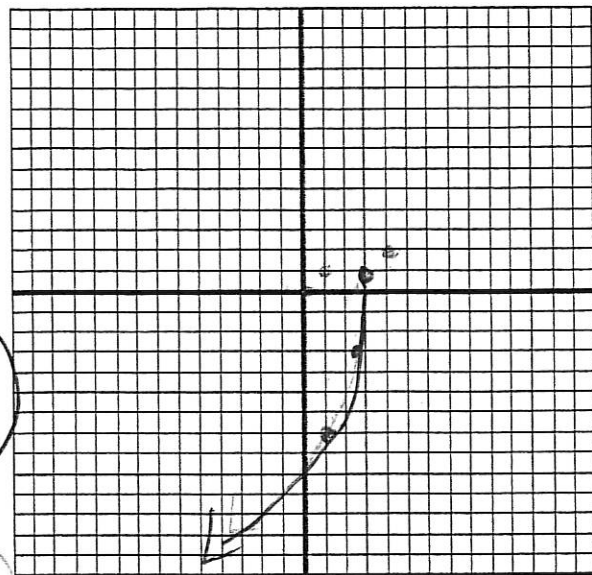
C: $\frac{x}{-2} + 3$

A: $-4y$

D: $-4y + 1$

$$-\frac{1}{2} + 3$$

x	y
3	1
2.5	-3 = (1, -7)
1	-7 = (+2.5, -3)



3) Use the description to write the transformed function, $g(x)$.

a) The parent function $f(x) = \sqrt{x}$ is compressed vertically by a factor of $\frac{1}{3}$ and then translated (shifted) 3 units left.

compressed vertically \rightarrow squished \rightarrow

$$a = \frac{1}{3}$$

$$c = -3$$

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

b) The parent function $f(x) = \sqrt{x}$ is reflected over the x-axis, stretch horizontally by a factor of 3 and then translated 1 unit left and 4 units down.

B $\frac{1}{3}$

C -1

A negative

D -4

\downarrow
 \leftarrow
like taffy.
less steep

$$f(x) = -\sqrt{\frac{1}{3}[x+1]} - 4$$