

## Homework Help

Page 135: EX 1-7 odd, 9-12, 13-26, 27-31 odd, 43, 44

3.  $x = t^3 - 4t$   $y = \sqrt{t+1}$  for  $t = 3$

$$x = (3)^3 - 4(3)$$

$$x = 27 - 12$$

$$x = 15$$

$$y = \sqrt{3+1}$$

$$y = \sqrt{4}$$

$$y = 2$$

$$(15, 2)$$

5. b.  $x = 2t$

$$t = \frac{x}{2}$$

$$y = 3\left(\frac{x}{2}\right) - 1$$

$$y = \frac{3x}{2} - 1$$

11. a) By the vertical line test, the relation is a function.

b) By the horizontal line test, the relation's inverse is a function.

15.  $y = \frac{2x-3}{x+1}$   $(y+1) x = \frac{2y-3}{y+1} (y+1)$

$$x(y+1) = 2y-3$$

$$xy + x = 2y - 3$$

$$xy - 2y = -x - 3$$

$$y(x-2) = -x-3$$

$$y = \frac{-x-3}{x-2} \text{ or } \frac{x+3}{-x+2}$$

$$D: (-\infty, 2) \cup (2, \infty)$$

24. Not one-to-one

31.  $f(x) = \frac{x+1}{x}$

$$g(x) = \frac{1}{x-1}$$

$$f(g(x)) = f\left(\frac{1}{x-1}\right) = \frac{\left(\frac{1}{x-1}\right) + 1}{\frac{1}{x-1}} = (x-1)\left(\frac{1}{x-1} + 1\right) = 1 + x - 1 = x \checkmark$$

$$g(f(x)) = g\left(\frac{x+1}{x}\right) = \frac{1}{\left(\frac{x+1}{x}\right) - 1} = \frac{1}{\frac{x+1}{x} - \frac{x}{x}} = \frac{1}{\frac{1}{x}} = x \checkmark$$

$f(x)$  and  $g(x)$  are inverses.