

Chapter 3 Review Test, page 297

- $0, D = \{x \mid -5 \leq x \leq 5, x \in \mathbf{R}\}, R = \{y \mid -5 \leq y \leq 5, y \in \mathbf{R}\}$, not a function: fails vertical line test
 - $8, D = \{1, 3, 5, 7, 9, 13\}, R = \{3, 6, 8, 9, 12\}$, function: each domain value has a unique range value
 - $-2, D = \{1, 4, 5, 8\}, R = \{-2, 2, 5, 7, 10\}$, not a function: 1 maps to 2 and 5
 - $8, D = \{x \mid x \in \mathbf{R}\}, R = \{y \mid y \in \mathbf{R}\}$, function: passes vertical line test
 - $\sqrt{2}, D = \{x \mid x \geq 3, x \in \mathbf{R}\}, R = \{y \mid y \geq 0, y \in \mathbf{R}\}$, function: passes vertical line test
 - $59, D = \{x \mid x \in \mathbf{R}\}, R = \{y \mid y \geq -5, y \in \mathbf{R}\}$, function: passes vertical line test
- $x \leq 2$, a solid dot above $x = 2$ and a line extending infinitely to the left
 - $x \leq \frac{45}{7}$, a solid dot above $x = \frac{45}{7}$ and a line extending infinitely to the left
- $f^{-1}(x) = \frac{x-6}{5}$
 - $f^{-1}(x) = x^2 - 4$
 - f^{-1} is $y = \pm\sqrt{x+5}$
- no; interchanging the domain and range values to find the inverse does not necessarily yield a function
- easy to use: draw a vertical line and count the intersection points with the function
- parabola with vertex $(3, 5)$, opening downward, passing through $(2, 4)$ and $(4, 4)$
 - $D = \{x \mid x \in \mathbf{R}\}, R = \{y \mid y \leq 5, y \in \mathbf{R}\}$
 - $g^{-1}(x) = -(y-3)^2 + 5$
 - parabola with vertex $(5, 3)$, opening left, passing through $(1, 5)$ and $(1, 1)$
 - $D = \{x \mid x \leq 5, x \in \mathbf{R}\}, R = \{y \mid y \in \mathbf{R}\}$
 - $g(x)$ is a function; passes vertical line test
- $I(x) = \$50 + \$0.05x$, x is number of bags of peanuts sold
 - $R(x) = \$2.50x$, x is number of bags of peanuts sold
 - 21
- apply in this order: vertical stretch by factor of 2, reflection in x -axis, vertical translation up 3 units, horizontal stretch by factor of $\frac{1}{2}$, reflection in y -axis, horizontal translation left 1 unit
 - straight line from $\left(-\frac{1}{2}, -7\right)$ to $\left(\frac{1}{2}, -7\right)$, diagonal line to $(-1, -1)$, diagonal line down to $(-2, -9)$, diagonal line down to $(-3, -13)$
- 0 or 1 point(s) of intersection
 - 0, 1, 2 or 4 point(s) of intersection
 - 0, 1, or 2 point(s) of intersection