Name _____ **5.2 Lesson Quiz**

Indicate whether the function is one-to-one.

1. {(6, –7), (9, –6), (7, –5), (5, –4)}

A) Yes B) No

Find the inverse. Determine whether the inverse represents a function.

2. {(6, –11), (10, –10), (8, –9), (6, –8)}

A) {(–10, –11), (–11, 8), (6, 10), (–10, –9)}; not a function

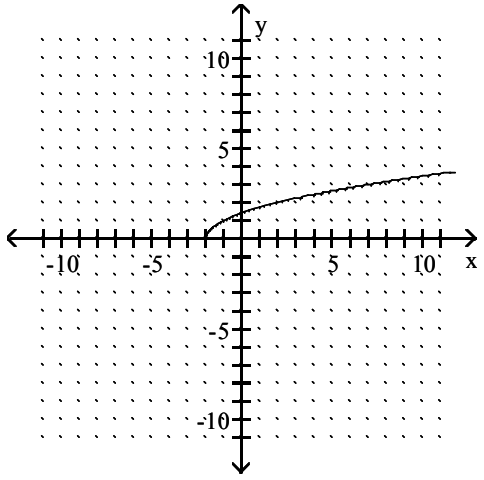
B) {(–11, 6), (–10, 10), (–9, 8), (–8, 6)}; not a function

C) {(–10, –11), (–8, 8), (6, 8), (–10, –9)}; a function

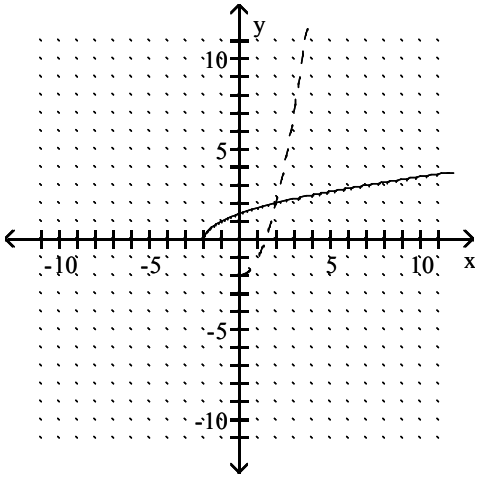
D) {(–11, 6), (–10, 10), (–9, 8), (–8, 6)}; a function

The graph of a one-to-one functions *f* is given. Draw the graph of the inverse function f^{-1} as a dashed line or curve.

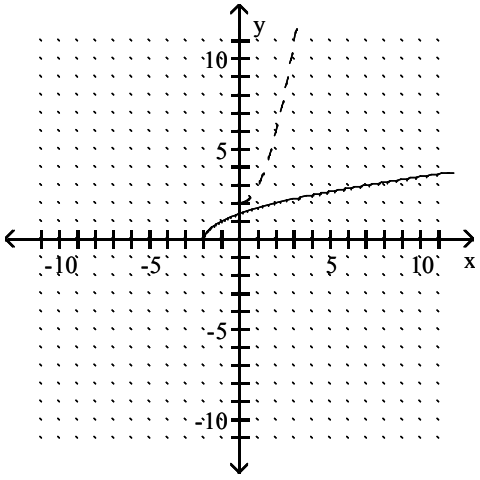
3. $f(x) = \sqrt{x + 2}$



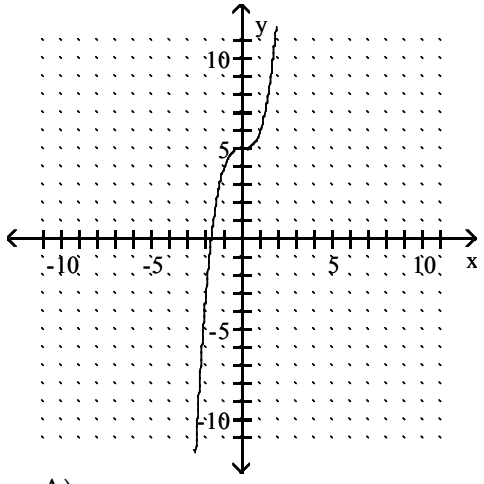
A)



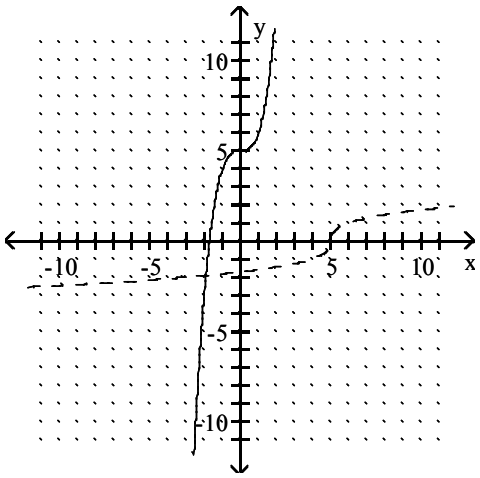
B)



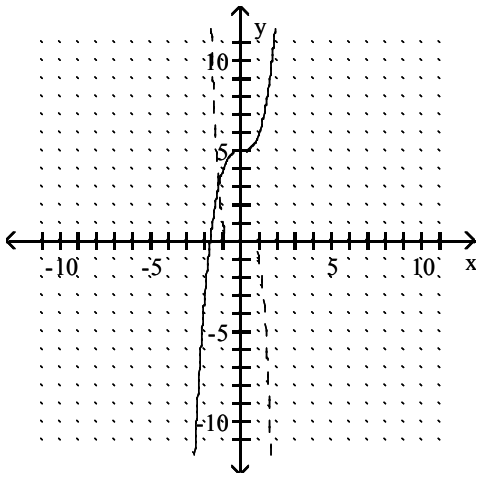
4. $f(x) = x^3 + 5$



A)



B)



Decide whether or not the functions are inverses of each other.

5. $f(x) = 3x - 4,\ g(x) = \dfrac{x + 3}{4}$

A) No B) Yes

6. $f(x) = (x - 5)^2,\ x \geq 5;\ \ g(x) = \sqrt{x + 5}$

A) No B) Yes

The function is one-to-one. Find its inverse.

7. $f(x) = 8x + 7$

A) $f^{-1}(x) = \dfrac{x - 7}{8}$ B) $f^{-1}(x) = \dfrac{x}{8} - 7$ C) $f^{-1}(x) = \dfrac{x}{8} + 7$ D) $f^{-1}(x) = \dfrac{x + 7}{8}$

8. $f(x) = \frac{3}{x - 5}$

A) $f^{-1}(x) = \frac{-5 + 3x}{x}$ B) $f^{-1}(x) = \frac{5x + 3}{x}$ C) $f^{-1}(x) = \frac{-5 + 3x^2}{x}$ D) $f^{-1}(x) = \frac{x}{-5 + 3x}$

Find the inverse function of *f*. State the domain and range of *f*.

9. $f(x) = \frac{3x - 2}{x + 5}$

A) $f^{-1}(x) = \frac{x + 5}{3x - 2}$; domain of f: $\{x \mid x \neq -5\}$; range of f: $\{y \mid y \neq \frac{2}{3}\}$

B) $f^{-1}(x) = \frac{3x + 2}{x - 5}$; domain of f: $\{x \mid x \neq -5\}$; range of f: $\{y \mid y \neq 5\}$

C) $f^{-1}(x) = \frac{5x + 2}{3 + x}$; domain of f: $\{x \mid x \neq -5\}$; range of f: $\{y \mid y \neq -3\}$

D) $f^{-1}(x) = \frac{5x + 2}{3 - x}$; domain of f: $\{x \mid x \neq -5\}$; range of f: $\{y \mid y \neq 3\}$

Determine i) the domain of the function, ii) the range of the functions, iii)the domain of the inverse, and iv) the range of the inverse.

10. $f(x) = \sqrt{1 - 4x}$

A) f(x): D = $\{x \mid x \geq 0\}$, R = $\{y \mid y \geq 0\}$;
$f^{-1}(x)$: D = $\{x \mid x \geq 0\}$, R = $\left\{y \mid y \geq \frac{1}{4}\right\}$

B) f(x): D = $\left\{x \mid x \leq \frac{1}{4}\right\}$, R = $\{y \mid y \geq 0\}$;
$f^{-1}(x)$: D = $\{x \mid x \geq 0\}$, R = $\left\{y \mid y \leq \frac{1}{4}\right\}$

C) f(x): D = $\left\{x \mid x \leq \frac{1}{4}\right\}$, R = $\{y \mid y \leq 0\}$;
$f^{-1}(x)$: D is all real numbers, R = $\left\{y \mid y \leq \frac{1}{4}\right\}$

D) f(x): D = $\left\{x \mid x \leq \frac{1}{4}\right\}$, R is all real numbers;
$f^{-1}(x)$: D is all real numbers, R = $\left\{y \mid y \leq \frac{1}{4}\right\}$