

HW 1.2.6-7: Inverse of a Function

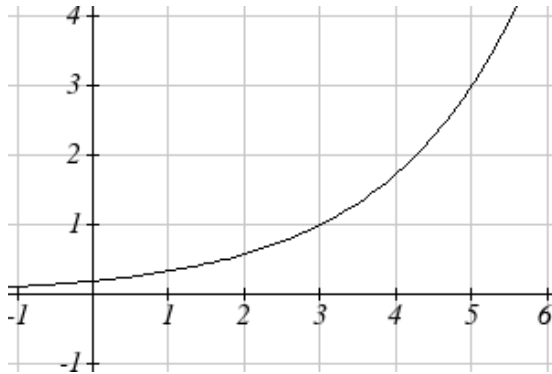
1. Using the table below

t (minutes)	15	30	45	60	75
$f(t)$ (miles)	5	20	35	50	55

Find and interpret the following

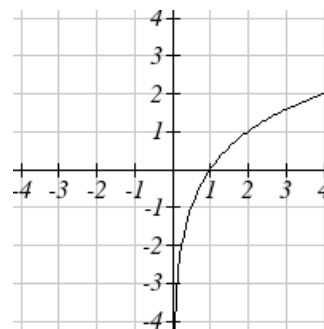
- $f(45)$
- $f^{-1}(55)$

2. A function $g(x)$ is given as a graph below. Find $g(5)$ and $g^{-1}(1)$



3. Find a formula for the inverse function that gives Fahrenheit temperature given a Celsius temperature. If $F = h(C) = 32 + \frac{9}{5}C$ then, $C = h^{-1}(F) =$

4. Given the graph of $f(x)$ shown, sketch a graph of $f^{-1}(x)$.



Assume that the function f is a one-to-one function.

5. If $f(8) = 5$, find $f^{-1}(5)$

6. If $f(1) = 9$, find $f^{-1}(9)$

7. If $f^{-1}(-2) = -6$, find $f(-6)$

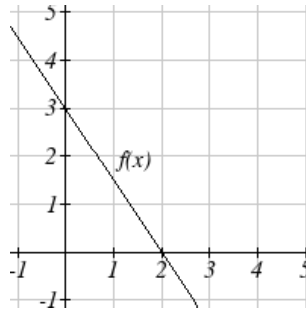
8. If $f^{-1}(3) = -4$, find $f(-4)$

9. If $f(12)=19$, find $(f(12))^{-1}$

10. If $f(-1)=7$, find $(f(-1))^{-1}$

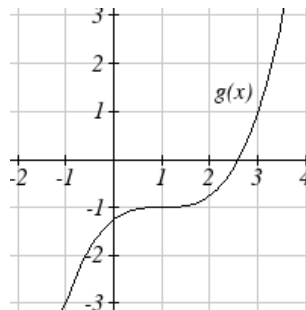
11. Using the graph of $f(x)$ shown

- Find $f(0)$
- Solve $f(x)=0$
- Find $f^{-1}(0)$
- Solve $f^{-1}(x)=0$
- Sketch $f^{-1}(x)$



12. Using the graph shown

- Find $g(1)$
- Solve $g(x)=1$
- Find $g^{-1}(1)$
- Solve $g^{-1}(x)=1$
- Sketch $f^{-1}(x)$



13. Use the table below to find the indicated quantities.

x	0	1	2	3	4	5	6	7	8	9
$f(x)$	3	7	1	9	6	2	8	5	0	4

- Find $f(7)$
- Solve $f(x)=4$
- Find $f^{-1}(8)$
- Solve $f^{-1}(x)=2$

14. Use the table below to fill in the missing values.

t	0	1	2	3	4	5	6	7	8
$h(t)$	9	4	7	2	5	1	8	0	3

- Find $h(3)$
- Solve $h(t)=5$
- Find $h^{-1}(0)$
- Solve $h^{-1}(t)=2$

For each table below, create a table for $f^{-1}(x)$.

15.

x	2	4	8	12	18
$f(x)$	3	5	9	14	20

16.

x	1	4	6	9	11
$f(x)$	2	5	10	13	18

For each function below, find $f^{-1}(x)$

17. $f(x) = x - 4$

18. $f(x) = x + 2$

19. $f(x) = 7 - x$

20. $f(x) = 8 - x$

21. $f(x) = 9x + 14$

22. $f(x) = 13 + 16x$

For each function, find a domain on which f is one-to-one and non-decreasing, then find the inverse of f restricted to that domain.

23. $f(x) = (x + 5)^2$

24. $f(x) = (x - 2)^2$

25. $f(x) = x^2 - 8$

26. $f(x) = x^2 + 7$

27. If $f(x) = x^3 - 8$ and $g(x) = \sqrt[3]{x + 8}$, find

a. $f(g(x))$

b. $g(f(x))$

c. What does this tell us about the relationship between $f(x)$ and $g(x)$?

28. If $f(x) = \frac{x}{3+x}$ and $g(x) = \frac{3x}{4-x}$, find

a. $f(g(x))$

b. $g(f(x))$

c. What does this tell us about the relationship between $f(x)$ and $g(x)$?