Inverse Functions

Question 1. Given $f(x) = x + 5$, find $f^{-1}(x)$

[3 marks]

Question 2. If $f(x) = 3x$, find $f^{-1}(x)$

[3 marks]

Question 3. Given $f(x) = x - 4$, find $f^{-1}(x)$

[3 marks]

Question 4. If $f(x) = \dfrac{x}{2}$, find $f^{-1}(x)$

[3 marks]

Question 5. Find the inverse of $f(x) = 5x + 1$

[3 marks]

Question 6. Find the inverse of $f(x) = x^2$ (for $x \geq 0$)

[3 marks]

Question 7. If $f(x) = \sqrt{x}$, find $f^{-1}(x)$

[3 marks]

Question 8. Find the inverse of $f(x) = \dfrac{1}{x}$

[3 marks]

Question 9. Given $f(x) = \dfrac{x+3}{2}$, find $f^{-1}(x)$

[3 marks]

Question 10. Find the inverse of $f(x) = \dfrac{2x-1}{3}$

[3 marks]

Question 11. Given $f(x) = 2x + 1$, find $f^{-1}(x)$ and verify that $f(f^{-1}(x)) = x$

[3 marks]

Question 12. If $f(x) = \dfrac{x-2}{3}$, find $f^{-1}(x)$ and verify $f^{-1}(f(x)) = x$

[3 marks]

Question 13. Let $f(x) = \dfrac{3}{x}$. Find $f^{-1}(x)$ and simplify $f(f^{-1}(x))$

[3 marks]

Question 14. Given $f(x) = \sqrt{x+1}$, find $f^{-1}(x)$

[3 marks]

Question 15. If $f(x) = \dfrac{1}{x+1}$, find $f^{-1}(x)$

[3 marks]

Question 16. Given $f(x) = \dfrac{2x+5}{x-1}$, find $f^{-1}(x)$

[3 marks]

Question 17. Solve the equation $f(f^{-1}(3)) = 3$, where $f(x) = 4x - 7$

[3 marks]

Question 18. Given $f(x) = \dfrac{1}{x}$, find $f^{-1}(x)$ and explain why $f(f^{-1}(x)) = x$

[3 marks]

Question 19. If $f(x) = 2x + 3$, and $g(x) = f^{-1}(x)$, find $g(f(x))$

[3 marks]

Question 20. Explain why not all functions have an inverse. Give an example.

[3 marks]
