

Find the inverse of each of the following functions.

1. $y = 2x + 6$

2. $y = x^2$, $[0, \infty)$

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

4. $g(x) = \log x$

5. $h(x) = \ln(x + 2)$

6. $y = e^{x+2} - 4$

Graph the following functions without a graphing calculator.

7. $y = (x - 2)^2 + 3$

8. $f(x) = \sin(2x)$

9. $f(t) = \ln t - 1$

10. $y = 3^x - 4$

11. $g(t) = \left(\frac{1}{3}\right)^t$

12. $y = e^{x+1} - 4$

Given

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

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

$$h(x) = x^2 + 1$$

13. Find $f \cdot g$

14. Find $\frac{f(x)}{g(x)}$

15. Find $f \circ h$

State the Domain.

16. #14?

17. $s(t) = \sqrt{t^2 - 16}$

18. $a(t) = \sqrt[3]{14t - 196}$

19. Given $v(-2) = 5$ and $v(3) = 10$ find an equation in point-slope form.

20. $f(x) = \sqrt{x-1}$, evaluate $\frac{f(x+\Delta x) - f(x)}{\Delta x}$.

21. $h(x) = x^2 + 1$, evaluate $\frac{f(x+h) - f(x)}{h}$

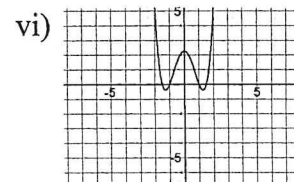
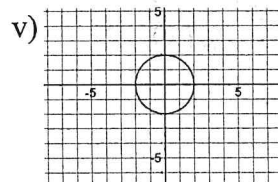
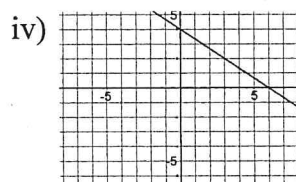
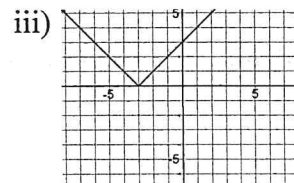
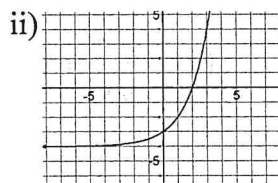
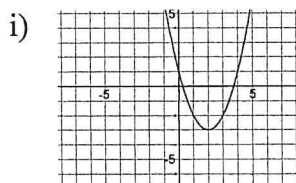
22. What would happen if $h = 0$ in number 21?

23. Graph the following piece-wise defined functions. State the Domain and Range.

$$a) f(x) = \begin{cases} x+2 & \text{if } x \leq -1 \\ x^2 & \text{if } x > -1 \end{cases}$$

$$b) f(t) = \begin{cases} \frac{1}{2}x+1 & \text{if } |x| \leq 2 \\ \sqrt{4-(x-4)^2} & \text{if } 2 < x < 6 \\ 2 & \text{if } 6 \leq x \leq 8 \\ -x+10 & \text{if } x > 8 \end{cases}$$

24. Answer the questions below. There may be more than one correct answer.



- Give a possible equation for each of the above graphs.
- Name each type of graph, i.e. Rational, Linear, Quadratic...