PRACTICE PROBLEMS

Let $f(x) = 2^x$ $g(x) = \sin(\pi x)$ $h(x) = \dfrac{1}{2x-1}$ $k(x) = \log_2 x$

Evaluate:

1. $f(3)$
2. $h(1)$
3. $k(1)$
4. $(f \circ g)(3/2)$
5. $(f \circ k)(x)$
6. $(h \circ f)(2)$
7. $f^{-1}(4)$
8. $(f \circ g)^{-1}(1)$
9. $h^{-1}(3)$

Solve:

10. $h(x) = 2$
11. $g(x) = 0$
12. $k(x) = 4$
13. $\dfrac{([g(x)]^2 + \cos^2(\pi x))\sqrt{2x+1}}{2x-2} = 0$
14. $x^2 - x - 1 = 0$

Factor:

15. $x^2 + 3x - 40$
16. $x^3 - 1$
17. $x^2 e^x - e^x$

Simplify:

18. $\dfrac{3}{2} + \dfrac{5}{3}$
19. $\dfrac{2x-1}{x^2} + \dfrac{x}{x^3}$
20. $\dfrac{2^{2x} \cdot (x^2-1)}{2^x \cdot (x-1)}$
21. $\dfrac{(x+h)^2 - x^2}{h}$

22. $\dfrac{(x+h)^3 - x^3}{h}$

Find the slope between:

23. $(3, 2)$ and $(7, 12)$
24. $(1, 1)$ and $(4, 4)$
25. $(0, -4)$ and $(-1, 12)$
26. $(-10, 5)$ and $(3, 0)$
27. $(2, 0)$ and $(3, 0)$

Find the Equation for the line:

28. with slope $\frac{1}{2}$ and y-intercept 2
29. with slope $-\frac{3}{2}$ and passing through $(4, 3)$
30. passing through $(3, 2)$ and $(7, 12)$

Graph:

31. $f(x) = \log_2 x$
32. $f(x) = 5x + 2$
33. $f(x) = (x-1)^2 + 2$
34. $\sin(2x)$