

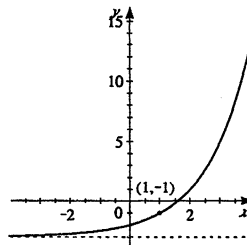
23. $g(x) = 2^x - 3$

The graph of g is obtained by shifting the graph of $y = 2^x$ downward 3 units.

Domain: $(-\infty, \infty)$

Range: $(-3, \infty)$

Asymptote: $y = -3$



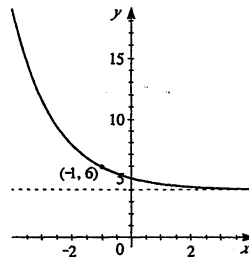
25. $h(x) = 4 + \left(\frac{1}{2}\right)^x$

The graph of h is obtained by shifting the graph of $y = \left(\frac{1}{2}\right)^x$ upward 4 units.

Domain: $(-\infty, \infty)$

Range: $(4, \infty)$

Asymptote: $y = 4$



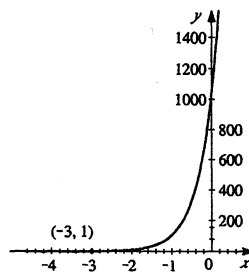
27. $f(x) = 10^{x+3}$

The graph of f is obtained by shifting the graph of $y = 10^x$ to the left 3 units.

Domain: $(-\infty, \infty)$

Range: $(0, \infty)$

Asymptote: $y = 0$



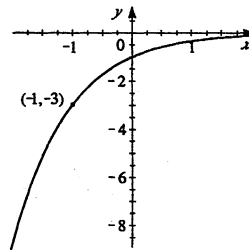
29. $f(x) = -3^{-x}$

The graph of f is obtained by reflecting the graph of $y = 3^x$ about the y -axis and then reflecting about the x -axis.

Domain: $(-\infty, \infty)$

Range: $(-\infty, 0)$

Asymptote: $y = 0$



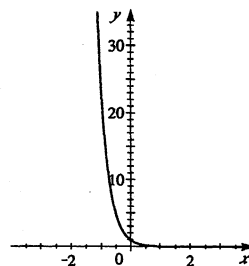
31. $f(x) = 5^{-2x}$

The graph of f is obtained by reflecting the graph of $y = 5^x$ about the y -axis and by shrinking it horizontally by a factor of 2.

Domain: $(-\infty, \infty)$

Range: $(0, \infty)$

Asymptote: $y = 0$



53. Calculating the pay for method (b), we have $pay = 2 + 2^2 + 2^3 + \dots + 2^{30} > 2^{30}$ cents = \$10,737,418.24. Since this is much more than method (a), method (b) is more profitable.