

Precalculus Homework Exponent basics

1. Express each of the following as a single power.

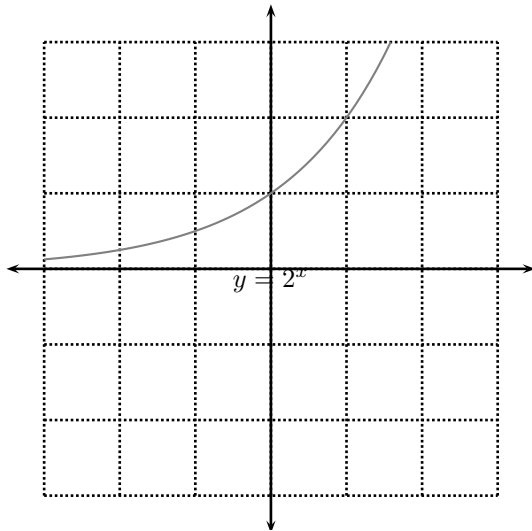
(a) $\frac{2^5 \cdot 2^7}{2\sqrt{2}}$

(b) $\frac{3^2 \cdot 3^{-1}}{3^3 \cdot \sqrt{3^3}}$

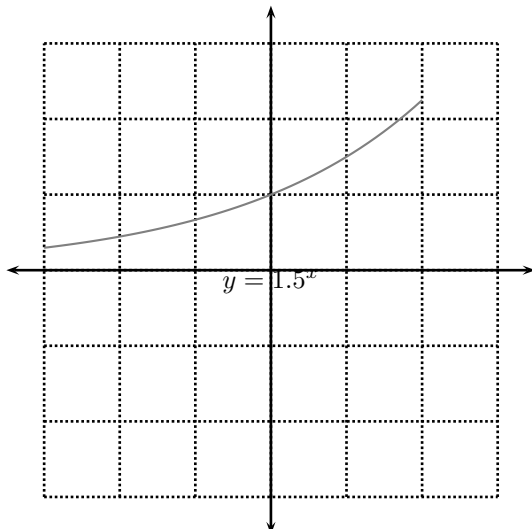
(c) $\frac{\pi^3}{\pi^{-1}\sqrt{\pi^5}}$

2. Sketch by hand approximately the given function. The function is obtained by transforming linearly the graph of a known function. The known function has been sketched for you by computer.

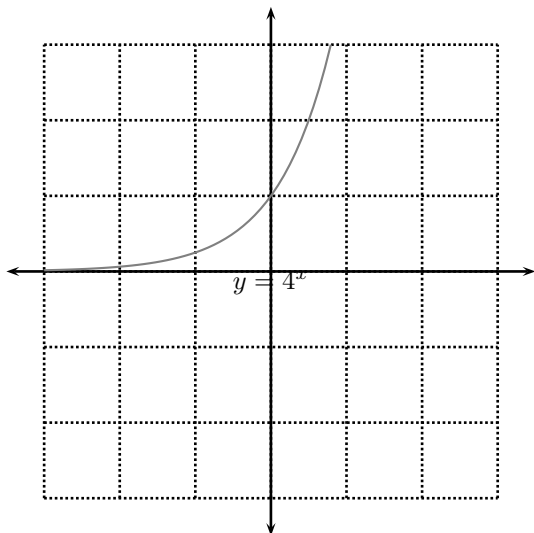
(a) $f(x) = 2^{x+1} - 1$.



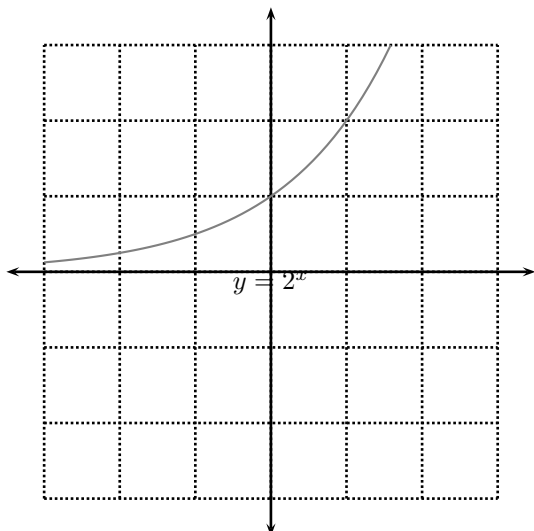
(b) $f(x) = 1.5^{x-2} + 2$.



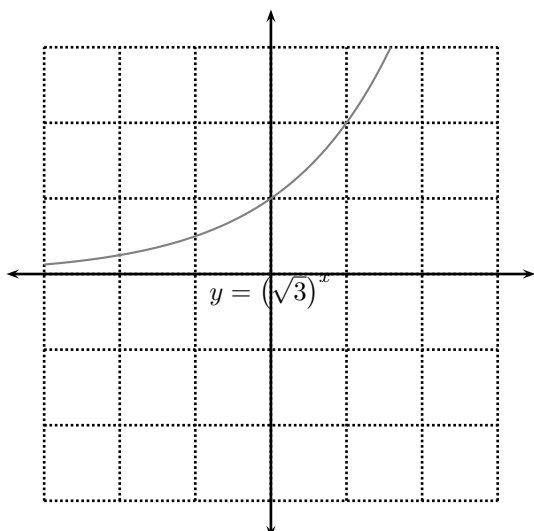
(c) $f(x) = 2^{2x-5}$.



(d) $f(x) = \frac{1}{2^{x-1}} + 1$.



(e) $f(x) = \frac{1}{3^{\frac{1}{2}x+1}} - 1$.



- (a) A sum is held under a yearly compound interest of 1%. Make an approximation by hand (no calculators allowed) by what factor will have the money increased after 200 years. Can you do the computation in your head?
- (b) Decide, without using a calculator, which is more profitable: earning a yearly compound interest of 2% for 150 years or earning yearly simple interest of 11% for 150 years?