MA161 Quiz 2

TA: Carlos Salinas

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Problem 2.1. Use the **Law of Exponents** to simplify the following expressions:

(a) $\dfrac{4^{-3}}{2^{-2}}$

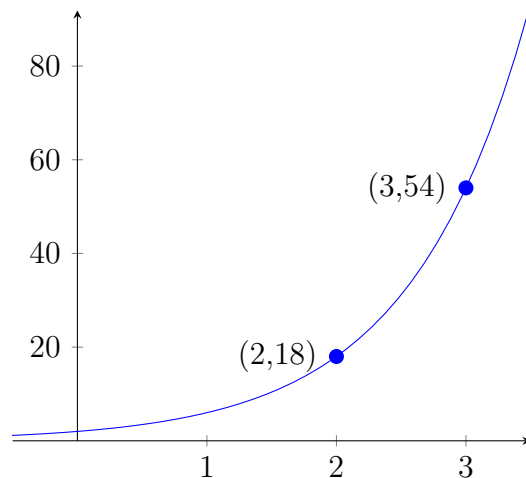(b) $(\sqrt{2})^3\sqrt{8}$

(c) $\dfrac{\sqrt[3]{27b}}{b^{-2/3}}$

Solution. Part (a) is quite simple:

$$\frac{4^{-3}}{2^{-2}} = \frac{(2^2)^{-3}}{2^{-2}}$$
$$= \frac{2^{-6}}{2^{-2}}$$
$$=$$

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Problem 2.2. Find the exponential function $f(x) = Cb^x$ whose graph is

sketched below:

Problem 2.3. Solve for x in the expressions:

(a) $3^{-x} + 3^x = 2$

(b) $\sqrt{8}x + \sqrt{32} = \dfrac{-x + 18}{\sqrt{2}}$

Problem 2.4. Let $f(x) = Cb^x$ with b and $C \neq 0$ (by this we mean that b and C can be any number except 0). Then

(a) True or false, f is always greater than 0.

(b) True or false, $f(x)$ is never 1.

(c) True or false, $f(x) = 0$ for some x.