1. Let $f(x) = \dfrac{1}{x}$. Assuming that $h \neq 0$, find and simplify $\dfrac{f(x+h) - f(x)}{h}$.

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2. Simplify the following expression as far as possible. Your answer should have no negative exponents:

(a) $\dfrac{y^4(x^3y^{-2})^2}{2x^{-1}} \stackrel{?}{=}$

(b) $\dfrac{(x^2+4)^2(3) - 2x(x^2+4)(3x-5)}{(x^2+4)^4} \stackrel{?}{=}$

3. Find ALL the zeroes of $f(x) = 2x^2 - x - 3$ **exactly**.

4. Solve $4^{x-2} = 8$. Be sure your answer is simplified.

5. Find and simplify the expression $\dfrac{g(n+1)}{g(n)}$ if $g(n) = \dfrac{2^n x^{2n-1}}{n^3}$.