GROUP QUIZ 5 QUESTIONS

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[1] **Prove the quotient rule for derivatives, using the definition of the derivative used in class.**
DO NOT USE THE PRODUCT RULE.
DO NOT USE THE Δu, Δv PROOF IN THE TEXTBOOK.

[2] **Find the derivatives of the following functions, using the definition of the derivative. You may use the values of the 2 trigonometric limits discussed in class without proving them.**
DO NOT USE THE DERIVATIVES OF ANY TRIGONOMETRIC FUNCTIONS.
DO NOT USE THE PRODUCT RULE OR QUOTIENT RULE.

[a] $f(x) = \tan x$

[b] $f(x) = \sec x$

[3] **The following table gives values and derivatives of two functions at various inputs.**

x	–3	–2	–1	0	1	2	3	4
$f(x)$	5	7	6	3	2	0	–1	–4
$f'(x)$	2	–2	–4	–1	–3	–2	–3	0
$g(x)$	–4	–2	–1	2	0	–3	1	5
$g'(x)$	3	2	5	0	–4	4	6	1

[a] **If $k(x) = x^3 g(x)$, find the equation of the tangent line to $y = k(x)$ at $x = 2$.**

[b] **If $m(x) = \dfrac{f(x)}{x^2}$, find the equation of the tangent line to $y = m(x)$ at $x = 3$.**

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