Lecture Study Guideline

You need to follow three steps to study

Step 1: Watch the video link given in the start of the topic.

Step 2: Read the lecture notes attached.

Step 3: Read the topic from course book and do practice of questions mention below.

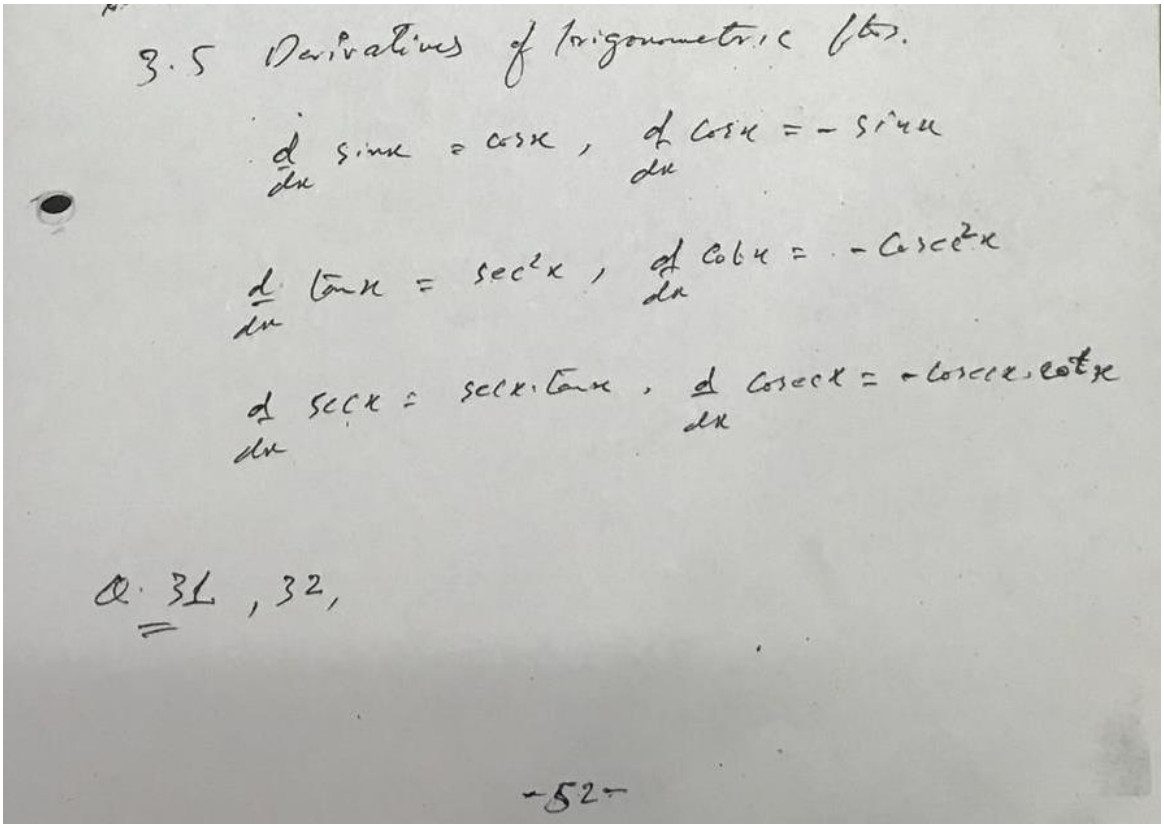
Topic: Differentiation of Trigonometry Functions

Step 1

https://www.youtube.com/watch?v=dylEXVIasqs

You can also watch other videos related to topic.

Step 2



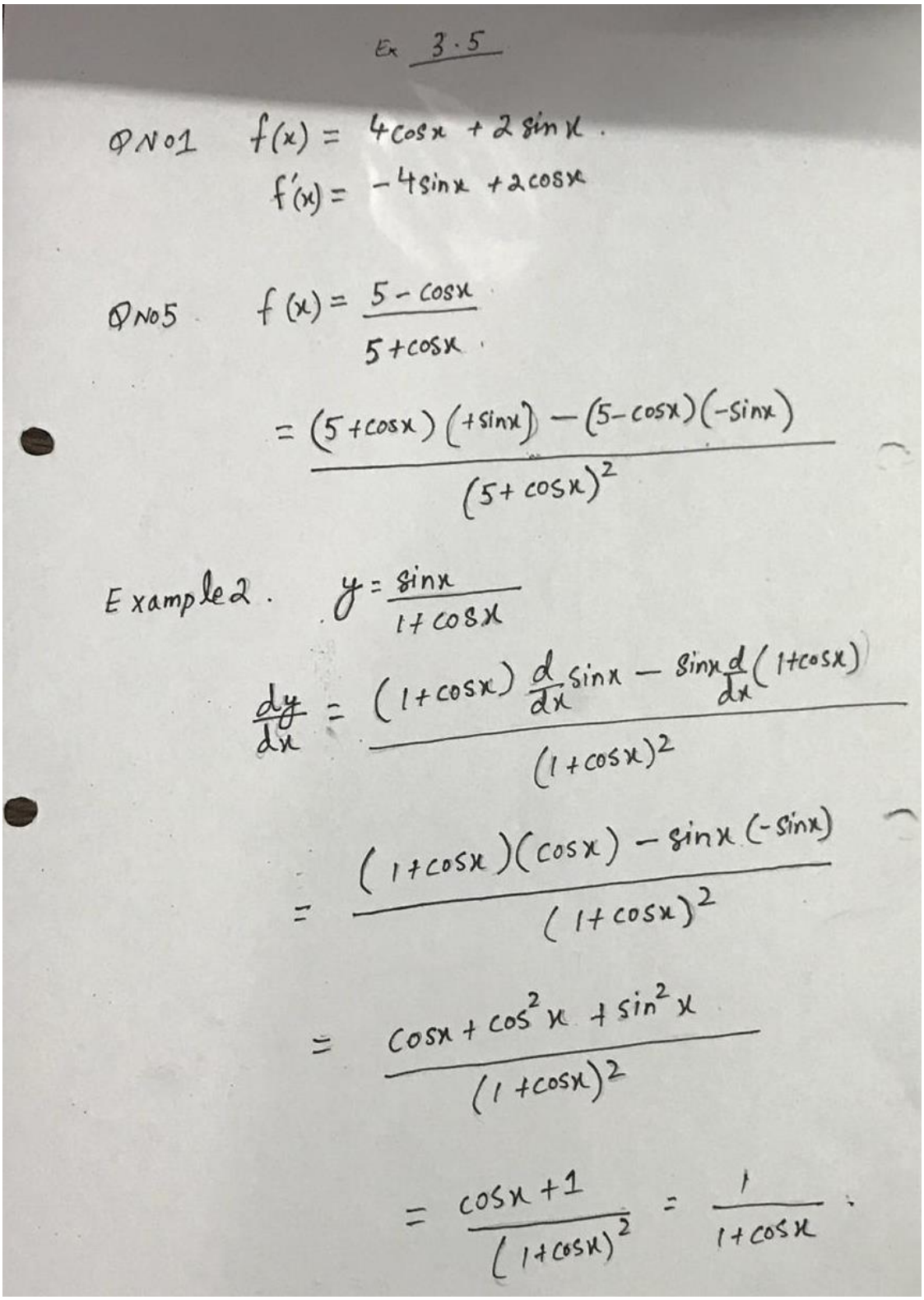
3.5 Derivatives of trigonometric fcts.

$\frac{d}{dx}\sin x = \cos x$, $\frac{d}{dx}\cos x = -\sin x$

$\frac{d}{dx}\tan x = \sec^2 x$, $\frac{d}{dx}\cot x = -\operatorname{cosec}^2 x$

$\frac{d}{dx}\sec x = \sec x \cdot \tan x$, $\frac{d}{dx}\operatorname{cosec} x = -\operatorname{cosec} x \cdot \cot x$

Q. 31, 32,



Ex 3.5

Q No 1 $f(x) = 4\cos x + 2\sin x$.

$f'(x) = -4\sin x + 2\cos x$

Q No 5 $f(x) = \dfrac{5-\cos x}{5+\cos x}$.

$= \dfrac{(5+\cos x)(+\sin x) - (5-\cos x)(-\sin x)}{(5+\cos x)^2}$

Example 2. $y = \dfrac{\sin x}{1+\cos x}$

$\dfrac{dy}{dx} = \dfrac{(1+\cos x)\dfrac{d}{dx}\sin x - \sin x \dfrac{d}{dx}(1+\cos x)}{(1+\cos x)^2}$

$= \dfrac{(1+\cos x)(\cos x) - \sin x(-\sin x)}{(1+\cos x)^2}$

$= \dfrac{\cos x + \cos^2 x + \sin^2 x}{(1+\cos x)^2}$

$= \dfrac{\cos x + 1}{(1+\cos x)^2} = \dfrac{1}{1+\cos x}$.

Step 3: Read topic 3.5 from text book (Calculus by Howard Anton 8th edition)

Practice exercise 3.5 (Q.1 to Q.24)