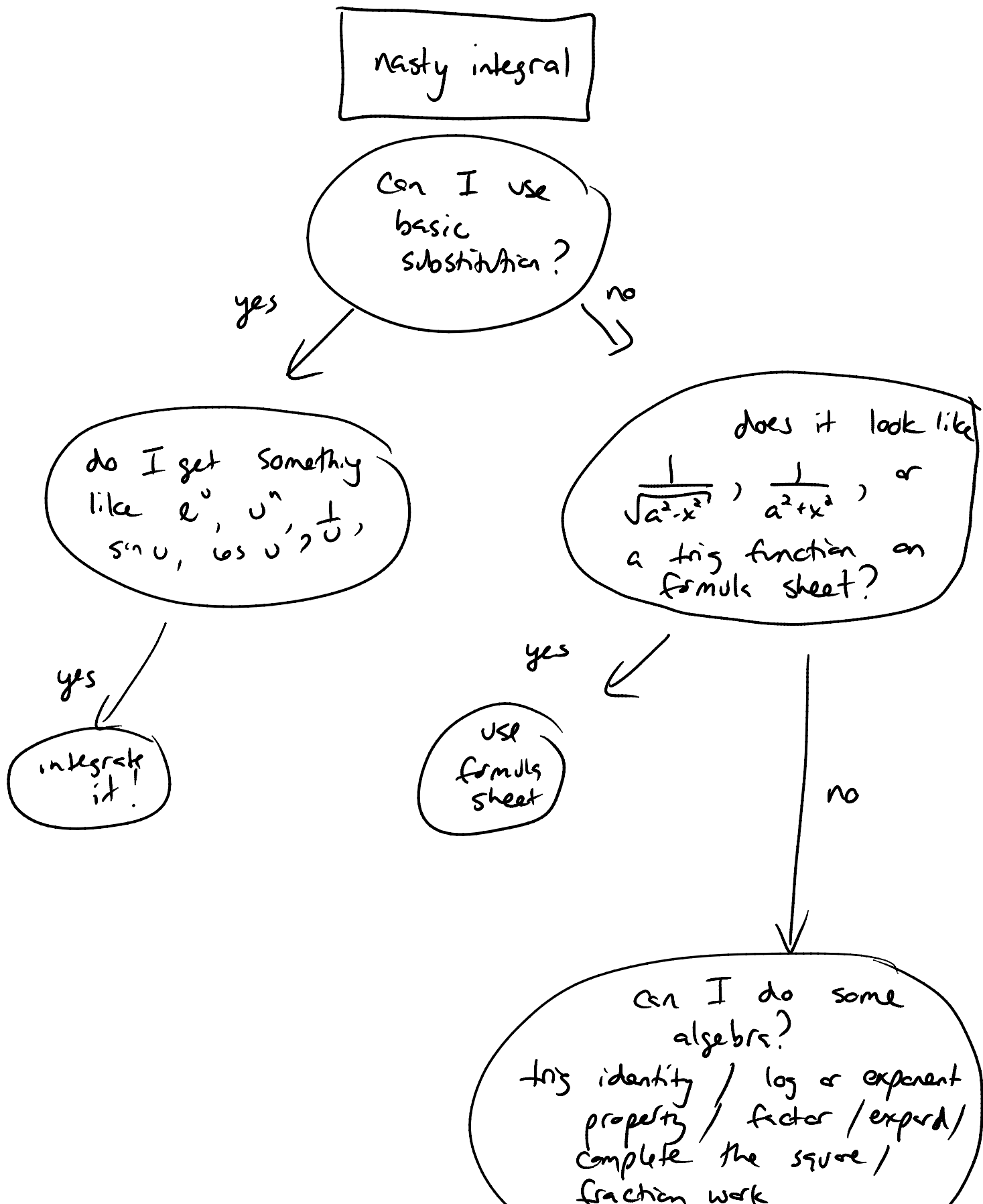


# Mixed Practice

January-17-17  
2:37 PM

decision tree:



complete the square /  
fraction work

note: always look for

function / derivative pairs

examples:

$$\textcircled{1} \int \frac{dx}{x \sqrt{\ln x}}$$

substitution  
with  $u = \ln x$

$$\textcircled{2} \int \frac{e^{2x}}{4 + e^{2x}} dx$$

substitution  
with  $u = e^{2x} + 4$   
or  $u = e^{2x}$

$$\textcircled{3} \int \sec^2 x \tan^3 x dx$$

substitution  $u = \tan x$

$$\textcircled{4} \int \frac{4 dx}{x^2 + 2x + 10}$$

complete the square

$$(5) \int (\sin x + \cos x)^2 \sin x \, dx$$

\_\_\_\_\_

expand

$$(\sin^2 x + 2 \sin x \cos x + \cos^2 x)$$

↑

↑

$$(1 + 2 \sin x \cos x)$$

$$(6) \int \frac{1 - \sin x}{\cos x} \, dx$$