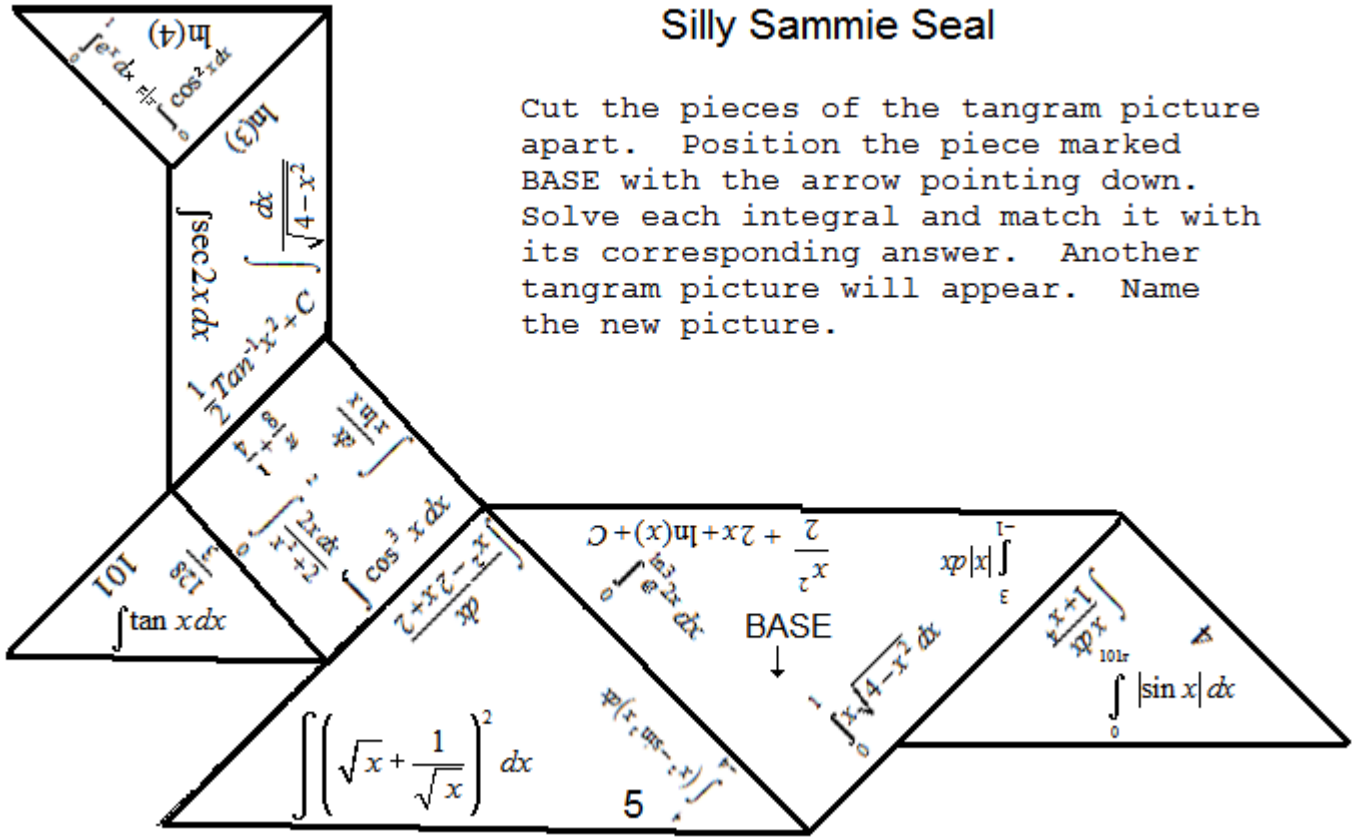
Silly Sammie Seal

Cut the pieces of the tangram picture apart. Position the piece marked BASE with the arrow pointing down. Solve each integral and match it with its corresponding answer. Another tangram picture will appear. Name the new picture.



Here are the problems listed in the tangram pieces. Work each of the integrals and look for a corresponding answer. Remember that not all integrals will have an answer in the tangram pieces (these problems will be located on the outside of the picture).

Problems:

$\int_0^1 e^x\,dx$ $\int_0^{\frac{\pi}{4}} \cos^2 x\,dx$ (in small triangle at top)

$\int \sec 2x\,dx$ $\int \frac{dx}{\sqrt{4-x^2}}$ (in parallelogram)

$\int_0^2 \frac{2x\,dx}{x^2+2}$ $\int \frac{dx}{x\ln x}$ $\int \cos^3 x\,dx$ (in square)

$\int \tan x\,dx$ (in small triangle at bottom)

$\int \left(\sqrt{x}+\frac{1}{\sqrt{x}}\right)^2 \mathrm{dx}$ $\int_{-4}^{4} \left(x^2-\sin^3 x\right)dx$

$\int \frac{\mathrm{dx}}{\mathrm{x}^2-2x+2}$ (in large triangle on left)

$\int_0^{\ln 3} e^{2x}\,dx$ $\int_0^1 x\sqrt{4-x^2}\,dx$ $\int_{-1}^{3} |x|\,dx$ (in large triangle on right)

$\int \frac{x\,dx}{1+x^4}$ $\int_0^{101\pi} |\sin x|\,dx$ (in middle sized triangle)

Here are the answers that appear in the tangram pieces:

Answers:

ln(4)		(in small triangle at top)
ln(3)	$\frac{1}{2}Tan^{-1}x^2+C$	(in parallelogram)
$\frac{\pi}{8}+\frac{1}{4}$		(in square)
101	$\frac{128}{3}$	(in small triangle at bottom)
5		(in large triangle on left)
$\frac{x^2}{2}+2x+\ln(x)+C$		(in large triangle on right)
4		(in middle sized triangle)

Go to http://www.pleacher.com/mp/mlessons/calc2007/sealans.pdf for the answer key