

$$\int \frac{dx}{4x^2 + 4x - 3}$$

$$S(dx/(4x^2+4x-3))=S(1/4(x-1/2)(x-3/2))dx=1/4S(1/(x-1/2)(x-3/2))dx$$

$$4x^2+4x-3=0$$

$$D=16+48=64$$

$$x=(-4\pm 8)/8=1/2; -3/2$$

$$1/(x-1/2)(x+3/2)=A/(x-1/2)+B/(x+3/2)=[Ax+3A/2+Bx-B/2]/(x-1/2)(x+3/2)=$$

$$=[x(A+B)+3A/2-B/2]/(x-1/2)(x+3/2)$$

$$A+B=0$$

$$3A/2-B/2=1$$

$$A=-B$$

$$-3B/2-B/2=1$$

$$-2B=1$$

$$B=-1/2$$

$$A=1/2$$

$$A/(x-1/2)+B/(x+3/2)=1/2(x-1/2)-1/2(x+3/2)$$

$$1/4S(1/2(x-1/2)-1/2(x+3/2))dx=1/8\ln|(x-1/2)/(x+3/2)|+C=1/8\ln|(2x-1)/(2x+3)|+C$$