

$$\int \frac{dx}{x^2 - 5x + 6}$$

$$S(dx/(x^2-5x+6))=S(1/(x-2)(x-3))dx=$$

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

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

$$A+B=0$$

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

$$x^2-5x+6=0$$

$$x_1=2$$

$$x_2=3$$

$$A=-B$$

$$3B-2B=1$$

$$B=1$$

$$A=-1$$

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

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

$$S(1/(x-3))dx=S(1/(x-3))d(x-3)=S(1/(t))d(t)=\ln|t|+C=\ln|x-3|+C$$