

$\int \frac{x-1}{x^2-2x-3} dx = \int \frac{1}{x^2-2x-3} dx = \ln|(x-3)(x+1)| + C$
 $\int \frac{x-4}{x^2-2x-3} dx = 2 \ln|(x-3)(x+1)| + C$
 find the absolute value
 $\int \frac{x-13}{x^2-2x-3} dx = 2 \ln|(x-3)(x+1)| + 3 \ln|x-2| + C$
 $\int \frac{x-4}{x^2-2x-3} dx = 2 \ln|(x-3)(x+1)| + 3 \ln|x-2| + C$

3) $\int \frac{x^2-4}{(x-2)(x+1)(x+3)} dx = 2 \int \frac{x^2-4}{(x-2)(x+1)(x+3)} dx$
 $= \int \left(\frac{A}{x-2} + \frac{B}{x+1} + \frac{C}{x+3} \right) dx$
 $= \frac{-13}{10} \ln|x-2| + \frac{17}{2} \ln|x+1| + \frac{6}{5} \ln|x+3| + C$

for $\int \frac{1}{x+3} dx$; $u = x+3$, $du = dx$, $\int \frac{1}{u} du = \ln|u|$
 for $\int \frac{1}{x+1} dx$; $u = x+1$, $du = dx$, $\int \frac{1}{u} du = \ln|u|$
 for $\int \frac{1}{x-2} dx$; $u = x-2$, $du = dx$, $\int \frac{1}{u} du = \ln|u|$

$-\frac{13}{10} \int \frac{1}{x+3} dx + \frac{17}{2} \int \frac{1}{x+1} dx + \frac{6}{5} \int \frac{1}{x-2} dx = -\frac{13 \ln|x+3|}{10} + \frac{17 \ln|x+1|}{2} + \frac{6 \ln|x-2|}{5} + C$

$\int \frac{x^2-2x}{(x-3)(x-1)(x+1)} dx = -\frac{13 \ln|x+3|}{5} + \frac{7 \ln|x+1|}{5} - \frac{6 \ln|x-2|}{5} + C$
 find the absolute value
 $-\frac{13}{5} \ln|(x+3)| + \frac{7}{5} \ln|(x+1)| - \frac{6}{5} \ln|(x-2)| + C$

find the absolute value
 $\int \frac{x-4}{x^2-2x-3} dx = 2 \ln|(x-3)(x+1)| + 3 \ln|x-2| + C$
 $\int \frac{x-13}{x^2-2x-3} dx = 2 \ln|(x-3)(x+1)| + 3 \ln|x-2| + C$

3) $\int \frac{x^2-4}{(x-2)(x+1)(x+3)} dx = 2 \int \frac{x^2-4}{(x-2)(x+1)(x+3)} dx$
 $= \int \left(\frac{A}{x-2} + \frac{B}{x+1} + \frac{C}{x+3} \right) dx$
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$\int \frac{x^2-2x}{(x-3)(x-1)(x+1)} dx = -\frac{13 \ln|x+3|}{5} + \frac{7 \ln|x+1|}{5} - \frac{6 \ln|x-2|}{5} + C$
 find the absolute value
 $-\frac{13}{5} \ln|(x+3)| + \frac{7}{5} \ln|(x+1)| - \frac{6}{5} \ln|(x-2)| + C$

