Solve the equation algebraically. Check for extraneous solutions.

$$(x-4)(x)+\left(\frac{1}{x-4}\right)^{(x-4)}=(0)(x-4)$$

$$x(x-4)+1=0$$

$$x^2-4x+1=0$$

$$2\pm\sqrt{3}$$

$$2\pm\frac{\sqrt{12}}{2}$$

Solve the equation algebraically. Check for extraneous solutions.

$$\frac{3x}{x+1}+\frac{5}{x-2}=\frac{15}{x^2-x-2}$$

$3x(x-2)+5(x+1)=15$

$3x^2-6x+5x+5=15$

$3x^2-x-10=0$

$(3x+5)(x-2)$

$x=-\frac{5}{3}$ ~~$x=2$~~

Solve the equation algebraically. Check for extraneous solutions.

$$\left(\frac{x+3}{x}\right)-\left(\frac{2}{x+3}\right)=\left(\frac{6}{x^2+3x}\right)$$

$x(x+3)$ $(x)(x+3)$ $(x)(x+3)$

$$(x+3)(x+3)-2x=6$$

$$x^2+6x+9-2x=6$$

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

$$(x+3)(x+1)=0$$

$x=-3$ $x=-1$