Use the method of Partial Fractions to rewrite the following

$$\frac{3x-5}{x^2-4x+3} = \frac{A\,(x-1)}{x-3} + \frac{B\,(x-3)}{x-1}$$

$$\boxed{\frac{2}{x-3} + \frac{1}{x-1}}$$

$(x-3)(x-1)$

$$3x-5 = A(x-1) + B(x-3)$$

Let $x=1$

$$3(1)-5 = A(1-1) + B(1-3)$$

$$-2 = -2B$$

$$B = 1$$

Let $x=3$

$$3(3)-5 = A(3-1) + B(3-3)$$

$$4 = 2A$$

$$A = 2$$

$$\frac{(x-1)}{(x-1)}\,\frac{2}{x-3} + \frac{1}{x-1}\,\frac{(x-3)}{(x-3)}$$

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

$$\frac{3x-5}{x^2-4x+3}$$

Use the method of Partial Fractions to rewrite the following

$$\frac{2x-6}{x^2+x-6} = \frac{A(x-2)}{x+3} + \frac{B(x+3)}{x-2}$$

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

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

Let $x=2$

$$2(2)-6 = A(2-2) + B(2+3)$$

$$-2 = 5B$$

$$B = \frac{-2}{5}$$

Let $x=-3$

$$2(-3)-6 = A(-3-2) + B(-3+3)$$

$$-12 = -5A$$

$$A = \frac{12}{5}$$

NO

BAD Math!

$$\frac{\frac{12}{5}}{x+3} - \frac{\frac{2}{5}}{x-2}$$

$$\boxed{\frac{12}{5(x+3)} - \frac{2}{5(x-2)}}$$

$$\frac{\frac{12}{5} \cdot \frac{1}{x+3}}{\frac{x+3}{1}} = \frac{12}{5(x+3)}$$

Use the method of Partial Fractions to rewrite the following

$$\frac{16-x}{x^2+3x-10} = \frac{A}{x+5} + \frac{B}{x-2}$$

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

$$\frac{-3}{x+5} + \frac{2}{x-2}$$

$$\frac{2}{x-2} - \frac{3}{x+5}$$

$$16-x = A(x-2) + B(x+5)$$

Let $x=2$

$16-2 = A(2-2) + B(2+5)$

$14 = 7B$

$B = 2$

Let $x=-5$

$16-(-5) = -7A$

$21 = -7A$

$A = -3$

Use the method of Partial Fractions to rewrite the following

$$\frac{2x-6}{x^2-2x} = \frac{A}{x} + \frac{B}{x-2}$$

$x(x-2)$

$$\frac{3}{x} - \frac{1}{x-2}$$

$$2x-6 = A(x-2) + Bx$$

Let $x=2$

$$2(2)-6 = A(2-2) + 2B$$

$$-2 = 2B$$

$$B = -1$$

Let $x=0$

$$2(0)-6 = A(0-2) + B(0)$$

$$-6 = -2A$$

$$A = 3$$

$$\frac{1}{x^2+2x} = \frac{A}{x} + \frac{B}{x+2}$$

$$\frac{1}{2x} - \frac{1}{2(x+2)}$$

$$1 = A(x+2) + Bx$$

Let $x=-2$

$1 = -2B$

$B = -\frac{1}{2}$

Let $x=0$

$1 = 2A$

$A = \frac{1}{2}$

$$\frac{6}{x^2-9} = \frac{A}{x-3} + \frac{B}{x+3}$$

$$\frac{1}{x-3} - \frac{1}{x+3}$$

$$6 = A(x+3) + B(x-3)$$

Let $x=-3$

$6 = -6B$

$B = -1$

Let $x=3$

$6 = 6A$

$A = 1$

$$\frac{x^2-7}{x^3-9x} = \frac{A^{(x-3)(x+3)}}{x} + \frac{B^{x(x+3)}}{x-3} + \frac{C^{x(x-3)}}{x+3} \qquad \frac{7}{9x} + \frac{1}{9(x-3)} + \frac{1}{9(x+3)}$$

$x(x^2-9)$

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

$$x^2-7 = A(x-3)(x+3) + Bx(x+3) + Cx(x-3)$$

Let $x=3$

$$(3)^2-7 = \cancel{A(3-3)(3+3)} + B(3)(3+3) + \cancel{C(3)(3-3)}$$

$2 = 18B$

$B = \frac{1}{9}$

Let $x=-3$

$(-3)^2-7 = C(-3)(-6)$

$2 = 18C$

$C = \frac{1}{9}$

Let $x=0$

$-7 = -9A$

$A = \frac{7}{9}$