

الكسور الجزئية

$$a) \frac{21-7x}{(x+5)(x^2+3)} = \frac{A}{x+5} + \frac{Bx+C}{x^2+3}$$

$$21-7x = A(x^2+3) + (Bx+C)(x+5)$$

$$\boxed{x=-5} \quad 21-7(-5) = A((-5)^2+3) + (B(-5)+C)(-5+5)$$
$$\frac{56}{28} = \frac{28}{28} A \quad A=2$$

$$\boxed{x=0} \quad 21-7(0) = 2(0^2+3) + (B(0)+C)(0+5)$$
$$\frac{21}{-6} = \frac{6}{5} + 5C \quad \frac{15}{5} = \frac{5C}{5} \quad C=3$$

$$\boxed{x=1} \quad 21-7(1) = 2(1^2+3) + (B(1)+C)(1+5)$$
$$\frac{14}{-26} = \frac{8}{6} + \frac{6B}{6} + \frac{18}{6} \quad \frac{-12}{6} = \frac{6B}{6} \quad B=-2$$

$$\frac{21-7x}{(x+5)(x^2+3)} = \frac{2}{x+5} + \frac{-2x+3}{x^2+3}$$

Zoom

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$$b) \frac{24}{(2x^2+x+5)(x-1)} = \frac{A}{(x-1)} + \frac{Bx+C}{2x^2+x+5}$$

$$24 = A(2x^2+x+5) + (Bx+C)(x-1)$$

$$\boxed{x=1} \quad \frac{24}{8} = \frac{8A}{8} \quad A=3$$

$$\boxed{x=0} \quad \frac{24}{-15} = \frac{5(-3)}{-15} - C \quad C=-9$$

$$\boxed{x=2} \quad \frac{24}{-36} = \frac{3(15)}{-36} + \frac{2B-9}{2} \quad \frac{2B}{2} = \frac{-12}{2} \quad B=-6$$

$$\frac{24}{(2x^2+x+5)(x-1)} = \frac{3}{x-1} + \frac{-6x-9}{2x^2+x+5}$$

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c) $\frac{x^2 - x + 1}{x^3 + 1}$

$(x+1)(x^2 - x + 1)$

$$\frac{x^2 - x + 1}{x^3 + 1} = \frac{A}{x+1} + \frac{Bx+C}{x^2 - x + 1}$$

$$x^2 - x + 1 = A(x^2 - x + 1) + (Bx + C)(x + 1)$$

$\boxed{x = -1}$ $x^2 - x + 1 = A(x^2 - x + 1) + (Bx + C)(x + 1)$
 $9 = 3A$ $\boxed{A = 3}$

$\boxed{x = 0}$ $x^2 - x + 1 = 3(x^2 - x + 1) + (Bx + C)(x + 1)$
 $1 = 3 + C$ $\boxed{C = -2}$

$\boxed{x = 2}$ $x^2 - x + 1 = 3(x^2 - x + 1) + (Bx + C)(x + 1)$
 $27 = 9 + 6B - 6$ $\boxed{B = 4}$

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