# ５５．分数式の計算②

(1) $\dfrac{x-3}{x-2}$　(2) 1　(3) $\dfrac{x}{x-3}$　(4) $\dfrac{a-b+c}{a+b+c}$　(5) $\dfrac{x+y}{x-y}$　(6) $\dfrac{2x+3}{x+1}$

次の式を計算せよ。

(1) $\dfrac{x^2-2x-3}{x^2-x-2}=\dfrac{(x-3)\cancel{(x+1)}}{(x-2)\cancel{(x+1)}}=\dfrac{x-3}{x-2}$

(2) $\dfrac{x^2+3x+2}{x^2-4}\times\dfrac{x-2}{x+1}=\dfrac{\cancel{(x+1)}\ \cancel{(x+2)}}{\cancel{(x+2)}\ \cancel{(x-2)}}\times\dfrac{\cancel{x-2}}{\cancel{x+1}}=1$

(3) $\dfrac{x^2-11x+24}{x^2-6x-16}\times\dfrac{x^2+2x}{x^2-6x+9}=\dfrac{\cancel{(x-3)}\ \cancel{(x-8)}}{\cancel{(x-8)}\ \cancel{(x+2)}}\times\dfrac{x\cancel{(x+2)}}{(x-3)^{\cancel{2}}}=\dfrac{x}{x-3}$

(4) $\dfrac{a^2-(b-c)^2}{(a+b)^2-c^2}=\dfrac{\{a+(b-c)\}\{a-(b-c)\}}{\{(a+b)+c\}\{(a+b)-c\}}=\dfrac{\cancel{(a+b-c)}\,(a-b+c)}{(a+b+c)\,\cancel{(a+b-c)}}=\dfrac{a-b+c}{a+b+c}$

(5) $\dfrac{x^2+xy+y^2}{x^2-xy+y^2}\div\dfrac{x^3-y^3}{x^3+y^3}=\dfrac{x^2+xy+y^2}{x^2-xy+y^2}\div\dfrac{(x-y)(x^2+xy+y^2)}{(x+y)(x^2-xy+y^2)}$

$=\dfrac{\cancel{x^2+xy+y^2}}{\cancel{x^2-xy+y^2}}\times\dfrac{(x+y)\cancel{(x^2-xy+y^2)}}{(x-y)\cancel{(x^2+xy+y^2)}}$

$=\dfrac{x+y}{x-y}$

(6) $\dfrac{2x^2-7x+3}{x^2+x-2}\div\dfrac{x^2-2x-3}{x^2-4}\times\dfrac{2x^2+x-3}{2x^2-5x+2}=\dfrac{\cancel{(2x-1)}\,(x-3)}{(x+2)\cancel{(x-1)}}\div\dfrac{(x-3)(x+1)}{(x+2)(x-2)}\times\dfrac{(2x+3)\cancel{(x-1)}}{\cancel{(2x-1)}\,(x-2)}$

$=\dfrac{\cancel{x-3}}{\cancel{x+2}}\times\dfrac{\cancel{(x+2)}\ \cancel{(x-2)}}{\cancel{(x-3)}\,(x+1)}\times\dfrac{2x+3}{\cancel{x-2}}$

$=\dfrac{2x+3}{x+1}$