$$\frac{12a^3x^4+2a^2x^5}{18ab^2x+3b^2x^2}=\frac{2a^2x^4(6a+x)}{3b^2x(6a+x)}=\frac{2a^2x^3}{3b^2}.$$

$$\frac{4-2x+x^2}{x+2}-x-2=\frac{4-2x+x^2-x^2-4x-4}{x-2}=-\frac{6x}{x+2}.$$

$$\frac{1}{(a-b)(a-c)}+\frac{1}{(b-a)(b-c)}+\frac{1}{(c-a)(c-b)}=$$

$$=\frac{1}{(a-b)(a-c)}-\frac{1}{(b-a)(b-c)}+\frac{1}{(a-c)(b-c)}=$$

$$=\frac{b-c-a+c+a-b}{(a-b)(a-c)(b-c)}=0.$$

*(Klein Jenő, Budapest.)*