

$$\begin{aligned}
 & \left(\begin{array}{c} a \\ a^2 - 2a + 1 \end{array} \right) \cdot \left(\begin{array}{c} a+2 \\ a^2 + a - 2 \end{array} \right) \cdot \left(\begin{array}{c} 1 \\ (2a-2)^2 \end{array} \right) = \left(\begin{array}{c} a \\ (a-1)^2 \end{array} \right) \cdot \left(\begin{array}{c} a+2 \\ (a-1)(a+2) \end{array} \right) \cdot \left(\begin{array}{c} 1 \\ (2a-2)^2 \end{array} \right) \\
 & \left(\begin{array}{c} a(a+2) - (a+2)(a-1) \\ (a-1)^2 \cdot (a+2) \end{array} \right) \cdot \left(\begin{array}{c} (2a-2)^2 \\ 1 \end{array} \right) = \left(\begin{array}{c} a^2 + 2a - (a^2 - a + 2a - 2) \\ (a-1)^2 \cdot (a+2) \end{array} \right) \cdot \left(\begin{array}{c} (2a-2)^2 \\ 1 \end{array} \right) \\
 & \left(\begin{array}{c} a^2 + 2a - a^2 + a - 2a + 2 \\ (a-1)^2 \cdot (a+2) \end{array} \right) \cdot \left(\begin{array}{c} (2a-2)^2 \\ 1 \end{array} \right) = \left(\begin{array}{c} a+2 \\ (a-1)^2 \cdot (a+2) \end{array} \right) \cdot \left(\begin{array}{c} (2a-2)^2 \\ 1 \end{array} \right)
 \end{aligned}$$

подсказка $f(x) = ax^2 + bx + c = a(x-x_1)(x-x_2)$
 $a^2 + a - 2$
 $f(a) = 1 \cdot a^2 + a - 2 = 1 \cdot (a-a_1)(a-a_2)$
 $a^2 + 1 \cdot a - 2 = 0$
 a_1, a_2
 $a_1 \cdot a_2 = -2$
 $a_1 + a_2 = -1$
 $a_1 = 1, a_2 = -2$
 $a^2 + a - 2 = 1 \cdot (a-1)(a+2)$

$$\begin{array}{c} (2a-2)^2 \\ (a-1)^2 \end{array} = \begin{array}{c} (2(a-1))^2 \\ (a-1)^2 \end{array} = \begin{array}{c} 2^2 \\ 1 \end{array} = 4$$