① Simplify, State Restrictions

a) $\dfrac{x^2 - 25}{12x^3} \times \dfrac{9x}{2x^2 + 10x}$

b) $\dfrac{3a^2 + 7a}{16 - a^2} \div \dfrac{14 + 6a}{3a + 12}$

c) $\dfrac{9x^2 + 9x + 2}{3x^2 - x - 2} \times \dfrac{3x^2 - 4x + 1}{9x^2 - 1}$

d) $\dfrac{4x^2 - 1}{2x^2 - 5x + 2} \div \dfrac{2x^2 - x - 1}{x^2 - 4}$

② Simplify, state restrictions.

a) $\dfrac{2x^2 - 5x - 3}{5x^2 - 45} \times \dfrac{2x^2 - 6x - 36}{2x^2 - 11x - 6}$

b) $\dfrac{3x^2 - 5x - 2}{2x^2 - 12x + 16} \times \dfrac{3x^2 - 24x + 48}{9x^2 - 1}$

c) $\dfrac{2a^2 + a - 10}{5a^3 + 15a^2} \div \dfrac{4a^2 - 25}{2a^2 + a - 15}$

d) $\dfrac{4x^2 - 12x + 9}{2x^2 - x - 3} \div \dfrac{x^2 - 2x + 1}{4x^2 - 4}$

③ Simplify, state restrictions

a) $\dfrac{3}{2a} + \dfrac{4}{6a}$

b) $\dfrac{5}{m} + \dfrac{2}{m + 3}$

c) $\dfrac{x + 2}{2x + 1} - \dfrac{2x + 1}{2x - 1}$

d) $\dfrac{6 + m}{4(m + 1)} + \dfrac{1 + 5m}{2(m - 1)}$

e) $\dfrac{y - 5}{2(y + 7)} - \dfrac{y + 2}{y - 3}$

f) $\dfrac{2}{x^2 - 4} + \dfrac{1}{x^2 - x - 2}$

⑩ Completely factor so that remaining factors have only integer coefficients.

a) $u^3 + 27v^3$

b) $64x^3 - y^3$

c) $3x^2 - 5x + 2$

d) $2x^2 - x - 1$

e) $5x^2 + 26x + 5$

f) $12x^2 + 7x + 1$

g) $\frac{1}{2}x^3 + 2x^2 - 5x$

h) $\frac{1}{3}y^4 - 5y^2 + 2y$

i) $\frac{2}{3}x(x - 3) - 4(x - 3)$

j) $\frac{4}{5}y(y + 1) - 2(y + 1)$

k) $(t - 1)^2 - 49$

l) $(x^2 + 1)^2 - 4x^2$

m) $2x(x - 5)^4 - x^2(4)(x - 5)^3$

n) $5(x^6 + 1)^4(6x^5)(3x + 2)^3 + 3(3x + 2)^2(3)(x^6 + 1)^5$

o) $\dfrac{x^2}{2}(x^2 + 1)^4 - (x^2 + 1)^5$