What Happens When the Smog Lifts in Los Angeles, California ?

Simplify each expression below and find your answer at the bottom of the page. Cross out the letter above each correct answer. When you finish, the answer to the title question will remain.

(1) $\dfrac{9x}{x^2-25} \cdot \dfrac{x^2+5x}{2x-4} \cdot \dfrac{x^2+3x-10}{3x^4}$

(2) $\dfrac{x+4}{2x^2-14x} \cdot \dfrac{x^3+4x^2}{3x-24} \div \dfrac{x^2+8x+16}{x^2-3x-28}$

(3) $\dfrac{4x^2-y^2}{x^2y-xy^2} \cdot \dfrac{x^2+xy}{8x+4y} \div \dfrac{2x^2-7xy+3y^2}{8x^5y}$

(4) $\dfrac{(2x-5)^3}{3-x} \div \dfrac{2x^2-3x-5}{6x^2+15x} \cdot \dfrac{x^2-2x-3}{4x^2-25}$

(5) $\dfrac{x^4-y^4}{3x^2y-3xy^2} \div \dfrac{x^2+2xy+y^2}{9xy^3} \div \dfrac{4x^2+4y^2}{xy^2+y^3}$

(6) $(75x^2-12) \div \left(\dfrac{35-2x-x^2}{x^2+7x} \div \dfrac{x-5}{5x^3+2x^2} \right)$

A	B	U	S	C	O	L	R	A	X
②	⑥		④		⑤		①		③
$\dfrac{x(x+4)}{6(x-8)}$	$\dfrac{3(5x-2)}{x}$	$\dfrac{2x^3(x+y)}{x-3y}$	$-3x(2x-5)$	$\dfrac{3y^3(x+y)}{4(x-y)}$	$\dfrac{3y^4}{4}$	$-3(2x-5)$	$\dfrac{3(x+5)}{2x^2(x-5)}$	$\dfrac{x(x+4)}{3(x-7)}$	$\dfrac{2x^5(x+y)}{(x-y)(x-3y)}$

OBJECTIVE 5–h: To simplify products and quotients involving three algebraic fractions.

① $\dfrac{9x^3}{(x+5)(x-5)} \cdot \dfrac{x(x+5)}{2(x-2)} \cdot \dfrac{(x+5)(x-2)}{3x^4} = \dfrac{3(x+5)}{2x^2(x-5)}$

$\dfrac{x^3}{x^2}$

② $\dfrac{x+4}{2x(x-7)} \cdot \dfrac{x^2(x+4)}{3(x-8)} \cdot \dfrac{(x-7)(x+4)}{(x+4)(x+4)} = \dfrac{x(x+4)}{6(x-8)}$

③ $\dfrac{(2x+y)(2x-y)}{xy(x-y)} \cdot \dfrac{x(x+y)}{4(2x+y)} \cdot \dfrac{8x^5y^2}{(2x-y)(x-3y)} = \dfrac{2x^5(x+y)}{(x-y)(x-3y)}$

$\begin{array}{c|c|c} 2x & -y \\ \hline x & 2x^2 & -xy \\ \hline 3y & -6xy & 3y^2 \end{array}$

④ $\dfrac{(2x-5)(2x-5)(2x-5)}{-(x-3)} \cdot \dfrac{3x(2x+5)}{(2x-5)(x+1)} \cdot \dfrac{(x-3)(x+1)}{(2x+5)(2x-5)} = \dfrac{3x(2x-5)}{-1}$

$\begin{array}{c|c|c} 2x & -5 \\ \hline x & 2x^2 & -5x \\ \hline 1 & 2x & -5 \end{array}$

⑤ $\dfrac{(x^2+y^2)(x+y)(x-y)}{3xy(x-y)} \cdot \dfrac{9xy^3}{(x+y)(x+y)} \cdot \dfrac{y^2(x+y)}{4(x^2+y^2)} = \dfrac{3y^4}{4}$

⑥ $\dfrac{3(25x^2-4)}{1} \div \left(\dfrac{-(x+7)(x-5)(x^2+2x+35)}{x(x+7)} \cdot \dfrac{x^2(5x+2)}{(x-5)} \right)$

$\dfrac{3(5x+2)(5x-2)}{1} \cdot \dfrac{1}{-x(5x+2)} = \dfrac{3(5x-2)}{-x}$