

IP#5-1 Multiplying Rational Expressions

This activity is designed to be “practice”. Each problem will have a factored form in the “Factored” column associated with a particular letter, a simplified version of the factored part in the “Simplified” column also associated with a letter, and finally an answer (in simplified form) in the “Answer” column that is associated with a letter.

Next to the problem number, put the letters associated with the factored, simplified, and answer columns when the problem is done. The letters should be in order: factored, simplified, answer.

The first problem is an example. Problems from the first page may have answers on the second page and vice versa.

Breaking the Code – Multiplying Rational Expression

Code	Problem	Factored	Simplified	Answer
Example: XYZ	$\frac{2x+6}{6x-18} \cdot \frac{3x-9}{7x+21}$	X $\frac{2(x+3)}{6(x-3)} \cdot \frac{3(x-3)}{7(x+3)}$	Y $\frac{\cancel{1}2(x+3)}{\cancel{3}6(x-3)} \cdot \frac{\cancel{3}(x-3)}{7(x+3)}$	Z $\frac{1}{7}$
1.	1. $\frac{6x-12}{3x+9} \cdot \frac{5x+15}{4x-8}$	A $\frac{(x+8)(x-3)}{(x+4)(x+8)} \cdot \frac{(x+5)(x-2)}{(x-2)(x-4)}$	A $\frac{(x+3)(x-2)}{3(x-2)} \cdot \frac{x(x-2)}{2(x+3)}$	A $\frac{x+4}{x+3}$
2.	2. $\frac{x+1}{16x^2} \cdot \frac{2x^3}{x^2-1}$	B $\frac{(x+3)(x+4)}{3x(x-2)} \cdot \frac{2x(x+2)(x-2)}{(x+2)(x+2)}$	B $\frac{(x+3)(x+4)}{(x-3)(x+3)} \cdot \frac{x-3}{x+3}$	B $\frac{x-4}{x+2}$
3.	3. $\frac{x^2-x-20}{x-5} \cdot \frac{x^2+7x+12}{x^2+8x+16}$	C $\frac{x(x-4)}{2(x+5)} \cdot \frac{(x+5)(x-4)}{3(x-4)}$	C $\frac{\cancel{2}x(x-2)}{1\cancel{2}(x+3)} \cdot \frac{5(x+3)}{\cancel{4}(x-2)} \cdot \frac{1}{2}$	C $\frac{5}{x+3}$
4.	4. $\frac{x^2+5x-24}{x^2+12x+32} \cdot \frac{x^2+3x-10}{x^2-6x+8}$	D $\frac{(x+3)(x-3)}{5(x+2)} \cdot \frac{x+2}{(x+3)(x+4)}$	D $\frac{(x+4)(2x-5)}{5(3x+1)(x+4)} \cdot \frac{4(3x-1)(2x+5)}{(2x-5)(2x+5)}$	D $\frac{4(x+4)}{3(2x+3)}$
5.	5. $\frac{x^2+7x+12}{x^2-9} \cdot \frac{x-3}{x+3}$	E $\frac{(x-5)(x+5)}{(x-5)(x+3)} \cdot \frac{5(x-1)}{(x-1)(x+5)}$	E $\frac{3(x-1)}{(x-6)(x+1)} \cdot \frac{3(x-6)}{x(x-1)}$	E $\frac{5}{2}$
6.	6. $\frac{x-2}{x^2-4} \cdot \frac{x^2-2x-8}{x+2}$	F $\frac{6(x-2)}{3(x+3)} \cdot \frac{5(x+3)}{4(x-2)}$	F $\frac{(x+3)(x+4)}{3x(x-2)} \cdot \frac{2x(x+2)(x-2)}{(x+2)(x+2)}$	F $\frac{x}{8(x-1)}$

7.	7. $\frac{x^2-4x}{2x+10} \cdot \frac{x^2+x-20}{3x-12}$	G $\frac{(x-5)(x+4)}{x-5} \cdot \frac{(x+3)(x+4)}{(x+4)(x+4)}$	G $\frac{4(x+4)(\cancel{2x-3}) \cdot (\cancel{3x-4})(\cancel{3x+4})}{(\cancel{2x-3})(\cancel{3x+4}) \cdot 3(2x+3)(\cancel{3x-4})}$	G $\frac{(x-3)(x+5)}{(x+4)(x-4)}$
8.	8. $\frac{x^2-25}{x^2-2x-15} \cdot \frac{5x-5}{x^2+4x-5}$	H $\frac{x-2}{(x-2)(x+2)} \cdot \frac{(x-4)(x+2)}{x+2}$	H $\frac{\cancel{x+1}}{16x^2} \cdot \frac{2x^3}{(\cancel{x+1})(x-1)}$	H $\frac{x(x-4)}{6}$
9.	9. $\frac{x^2+7x+12}{3x^2-6x} \cdot \frac{2x^3-8x}{x^2+4x+4}$	I $\frac{(x+4)(2x-5)}{5(3x+1)(x+4)} \cdot \frac{4(3x-1)(2x+5)}{(2x-5)(2x+5)}$	I $\frac{(\cancel{x+2})(x+5)}{x+3} \cdot \frac{4(\cancel{x+3})}{(\cancel{x+2})(x-2)}$	I $\frac{4(x+5)}{x-2}$
10.	10. $\frac{2x^2+3x-20}{15x^2+65x+20} \cdot \frac{24x^2+52x-20}{4x^2-25}$	J $\frac{(x+3)(x-2)}{3(x-2)} \cdot \frac{x(x-2)}{2(x+3)}$	J $\frac{(\cancel{x+8})(x-3)}{(x+4)(\cancel{x+8})} \cdot \frac{(x+5)(\cancel{x-2})}{(\cancel{x-2})(x-4)}$	J $\frac{9}{x(x+1)}$
11.	11. $\frac{8x^2+20x-48}{6x^2-x-12} \cdot \frac{9x^2-16}{18x^2+3x-36}$	K $\frac{x+1}{16x^2} \cdot \frac{2x^3}{(x+1)(x-1)}$	K $\frac{(\cancel{x+3})(x-3)}{5(x+2)} \cdot \frac{\cancel{x+2}}{(\cancel{x+3})(x+4)}$	K $\frac{2(x+3)(x+4)}{3(x+2)}$
12.	12. $\frac{x^2-9}{5x+10} \cdot \frac{x+2}{x^2+7x+12}$	L $\frac{(x+2)(x+5)}{x+3} \cdot \frac{4(x+3)}{(x+2)(x-2)}$	L $\frac{(\cancel{x-5})(\cancel{x+4})}{\cancel{x-5}} \cdot \frac{(x+3)(\cancel{x+4})}{(\cancel{x+4})(\cancel{x+4})}$	L $\frac{x(x-2)}{6}$
13.	13. $\frac{x^2+7x+10}{x+3} \cdot \frac{4x+12}{x^2-4}$	M $\frac{(x+3)(x+4)}{(x-3)(x+3)} \cdot \frac{x-3}{x+3}$	M $\frac{x(x-4)}{2(\cancel{x+5})} \cdot \frac{(\cancel{x+5})(\cancel{x-4})}{3(\cancel{x-4})}$	M $\frac{4(3x-1)}{5(3x+1)}$
14.	14. $\frac{x^2+x-6}{3x-6} \cdot \frac{x^2-2x}{2x+6}$	N $\frac{3(x-1)}{(x-6)(x+1)} \cdot \frac{3(x-6)}{x(x-1)}$	N $\frac{\cancel{x-2}}{(\cancel{x-2})(x+2)} \cdot \frac{(x-4)(\cancel{x+2})}{\cancel{x+2}}$	N $x+3$
15.	15. $\frac{3x-3}{x^2-5x-6} \cdot \frac{3x-18}{x^2-x}$	O $\frac{4(x+4)(2x-3)}{(2x-3)(3x+4)} \cdot \frac{(3x-4)(3x+4)}{3(2x+3)(3x-4)}$	O $\frac{(\cancel{x-5})(\cancel{x+5})}{(\cancel{x-5})(x+3)} \cdot \frac{5(\cancel{x-1})}{(\cancel{x-1})(\cancel{x+5})}$	O $\frac{x-3}{5(x+4)}$