

Multiplying and Dividing Rational Expressions

In problems 1-4, state the domain of each rational expression

1. $\frac{8x-1}{4x+3}$	2. $\frac{x+2}{x^2-12x+32}$
3. $\frac{x-3}{4x^2+x-5}$	4. $\frac{2}{x^2+16}$

In problems 5-11, simplify each rational expression

5. $\frac{7x+14}{8x^2+16x}$	6. $\frac{3x-6}{x^2-4}$
7. $\frac{x^2-9x+8}{x^2+4x-5}$	8. $\frac{x^2-3x-28}{3x^2-22x+7}$
9. $\frac{16-x^2}{x^2+9x+20}$	10. $\frac{3x^2-10x+7}{x^2-1}$
11. $\frac{x^3-5x^2-4x+20}{x^2-3x-10}$	

In problems 12-17, multiply and simplify each rational expression

12. $\frac{x+3}{x^2-9} \cdot \frac{x^2+2x-15}{7x+35}$	13. $\frac{8x+24}{x^2+9x+18} \cdot \frac{x^2+3x-18}{x-3}$
14. $\frac{6x^2+13x-5}{9x^2-1} \cdot \frac{21x^2-5x-4}{7x^2+17x-12}$	15. $\frac{x^2+6x-16}{x^2-64} \cdot (x-8)$
16. $\frac{x^2-3x+2}{5x^2-6x+1} \cdot \frac{5x-1}{x-2}$	17. $\frac{x^3+3x^2-x-3}{x^2+4x+3} \cdot \frac{7x-14}{x-1}$

In problems 18-19, divide and simplify each rational expression

18. $\frac{2x+5}{x^2-4} \div \frac{6x^2+13x-5}{3x-1}$	19. $\frac{x^2-2x-35}{x^2+x-20} \div \frac{x^2-4x-21}{x^2-9x+20}$
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In problem 20, determine the domain of each rational function

20. $f(x) = \frac{7}{x^2-8x+15}$	
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