

Name: Key

Unit 10: Rational Expressions



Date: _____ Bell: _____

Homework 2: Multiplying Rational Expressions

Directions: Find each product. Final answers must be simplified.

1. $\frac{6ab}{a^2b^2} \cdot \frac{a^2}{b^2} = \frac{6a^3b}{a^2b^4}$
 $\frac{6a}{b^3}$

2. $\frac{24mn^2}{8m^4n^3} \cdot \frac{12m^3n^2}{36m^2n} = \frac{m^4n^4}{m^6n^4}$
 $\frac{1}{m^2}$

3. $\frac{18x^2}{10y^2} \cdot \frac{15y^3}{24x} = \frac{9x^2y^3}{8xy^2}$
 $\frac{9xy}{8}$

4. $\frac{2n-8}{n+2} \cdot \frac{3n+6}{n-4} = \frac{2(n-4) \cdot 3(n+2)}{(n+2)(n-4)}$
 6

5. $\frac{y^2+9y+8}{4y^2-9} \cdot \frac{2y-3}{y+1} = \frac{(y+8)(y+1)(2y-3)}{(2y-3)(2y+3)(y+1)}$
 $\frac{y+8}{2y+3}$

6. $\frac{8x+8}{x^2-2x+1} \cdot \frac{x-1}{2x+2} = \frac{4(x+1)(x-1)}{(x-1)(x+1) \cdot 2(x+1)}$
 $\frac{4}{x-1}$

7. $\frac{a^2-25}{a+2} \cdot \frac{a^2-4}{a^2-7a+10} = \frac{(a-5)(a+5)(a-2)(a+2)}{(a+2)(a-5)(a-2)}$
 $a+5$

8. $\frac{x^2+6x+8}{2x^2+9x+4} \cdot \frac{2x^2-x-1}{x^2-3x+2} = \frac{(x+4)(x+2)(2x+1)(x-1)}{(2x+1)(x+1)(x-2)(x+1)}$
 $\frac{x+2}{x-2}$

9. $\frac{m^2-1}{2m-2} \cdot \frac{4m}{m+1} = \frac{(m-1)(m+1) \cdot 4m}{2(m-1)(m+1)}$
 $2m$

10. $\frac{n^2-1}{n^2-7n+10} \cdot \frac{n^2-25}{n^2+6n+5} = \frac{(n-1)(n+1)(n-5)(n+5)}{(n-5)(n-2)(n+5)(n+1)}$
 $\frac{n-1}{n-2}$

11. $\frac{3p-3r}{10pr} \cdot \frac{20p^2r^2}{p^2-r^2} = \frac{3(p-r)(20p^2r^2)}{10pr(p-r)(p+r)}$
 $\frac{6p^2r^2}{pr(p+r)} = \frac{6pr}{p+r}$

12. $\frac{6x^2+6x}{x^2-3x-4} \cdot \frac{2x^2-7x-4}{8x^3+4x^2} = \frac{6x(x+1)(x-4)(2x+1)}{(x-4)(x+1) \cdot 4x^2(2x+1)} = \frac{6x}{4x^2} = \frac{3}{2x}$

13. $\frac{v^2-4v-21}{3v^2+6v} \cdot \frac{v^2+8v}{v^2+11v+24} = \frac{(v-7)(v+3) \cdot v(v+8)}{3v(v+2) \cdot (v+8)(v+3)}$
 $\frac{v-7}{3v+6}$

14. $\frac{x+7}{x^3} \cdot \frac{x^2-10x}{x^2-3x-70} = \frac{(x+1)(x)(x-10)}{x \cdot x \cdot (x-10)(x+7)}$
 $\frac{1}{x^2}$

15. $\frac{2n-3}{10n^2-17n+3} \cdot \frac{15n^3-3n^2}{6n^2-6n} = \frac{(2n-3)(3n^2)(5n-1)}{(2n-3)(5n-1)(6n(n-1))}$
 $\frac{n}{2n-2}$