Math 1 Name _____

Unit 2: Multiplying and Dividing Rational Expressions

1. $\frac{a^2-b^2}{a-b} = \frac{(a+b)(a-b)}{a-b} = \boxed{a+b}$

2. $\frac{4x-4}{4x+4} = \frac{4(x-1)}{4(x+1)} = \boxed{\frac{x-1}{x+1}}$

2. $\frac{3a+15}{a^2-25} = \frac{3(a+5)}{(a-5)(a+5)} = \boxed{\frac{3}{a-5}}$

4. $\frac{3s^2-27}{s^2+7s+12} = \frac{3(x-3)(x+3)}{(x+3)(x+4)} = \boxed{\frac{3(s-3)}{(s+4)}}$

5. $\frac{5z^2+5z-30}{7z^2+7z-42} = \frac{5(z^2+z-6)}{7(z^2+z-6)} = \boxed{\frac{5}{7}}$

6. $\frac{5n+15}{8n+4} \cdot \frac{4n+2}{3n+9} = \frac{5(n+3)}{2(2n+1)} \cdot \frac{2(2n+1)}{3(n+3)} = \boxed{\frac{5}{6}}$

6. $\frac{k^2-4}{8k^2+3k} \cdot \frac{16k+6}{k-2} = \frac{(k+2)(k-2)}{k(8k+3)} \cdot \frac{2(8k+3)}{k-2} = \boxed{\frac{2(k+2)}{k}}$

8. $\frac{25-c^2}{12} \cdot \frac{4}{5-c} = \frac{(5-c)(5+c)}{12} \cdot \frac{4}{5-c} = \boxed{\frac{5+c}{3}}$

9. $\frac{2c^2-5c-3}{c+d} \cdot \frac{c^2-d^2}{2c+1} = \frac{(2c+1)(c-3)(c-d)(c+d)}{(c+d)(2c+1)} = \boxed{(c-3)(c-d)}$

10. $\frac{t^2+6t+9}{t^2-10t+25} \cdot \frac{t^2-t-20}{t^2+7t+12} = \frac{(x+3)(x+3)}{(x-5)(x-5)} \cdot \frac{(x-5)(x+4)}{(x+4)(x+3)} = \boxed{\frac{x+3}{x-5}}$

10. $\frac{x^2-x-6}{x^2+2x-15} \div \frac{x^2-4x-5}{x^2-25}$

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

12. $\frac{m^2+2m+1}{10m-10} \div \frac{m+1}{20}$

$\frac{(m+1)(m+1)}{10(m-1)} \cdot \frac{20^2}{m+1} = \boxed{\frac{2(m+1)}{m-1}}$

13. $\frac{a^2+10a+25}{a^2-9} \div \frac{a+5}{a^2-3a}$

$\frac{(a+5)(a+5)}{(a+3)(a-3)} \cdot \frac{a(a-3)}{a+5} = \boxed{\frac{a(a+5)}{a+3}}$

14. $\frac{x^2-1}{x^2-3x-10} \div \frac{x^2+3x+2}{x^2+4x+4}$

$\frac{(x-1)(x+1)}{(x-5)(x+2)} \cdot \frac{(x+2)(x+2)}{(x+2)(x+1)}$

$\boxed{\frac{x-1}{x-5}}$

15. $\frac{6a}{a-4} \div \frac{a^2-7a}{a^2-11a+28}$

$\frac{6a}{a-4} \cdot \frac{(a-4)(a-7)}{a(a-7)} = \boxed{6}$