Name: Key Date:

Algebra 1 Band:

Unit 10: Rational Expressions PBA Practice

Simplify.

1. $\frac{4x+12}{x^2-2x} \cdot \frac{x}{6x+18}$

$\frac{4(x+3)}{x(x-2)} \cdot \frac{x}{6(x+3)} = \boxed{\frac{2}{3(x-2)}}$

2. $\frac{a^2+5a+4}{a^3} \div \frac{a^2+3a+2}{a^2-2a}$

$\frac{a^2+5a+4}{a^3} \cdot \frac{a^2-2a}{a^2+3a+2}$

$\frac{(a+4)(a+1)}{a^3} \cdot \frac{a(a-2)}{(a+2)(a+1)} = \boxed{\frac{(a+4)(a-2)}{a^2(a+2)}}$

3. $\frac{x^2+13x+40}{x-7} \div \frac{x+8}{x^2-49}$

$\frac{x^2+13x+40}{x-7} \cdot \frac{x^2-49}{x+8}$

$\frac{(x+8)(x+5)}{x-7} \cdot \frac{(x-7)(x+7)}{x+8} = \boxed{(x+5)(x+7)}$

4. $\frac{6}{7x} + \frac{1}{4 \cdot 7x}$

LCD $= 28x$

$\frac{24}{28x} + \frac{7x}{28x} = \boxed{\frac{24+7x}{28x}}$

5. $\frac{k-2}{k^2+2k-8}$

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

6. $\frac{9}{3x-1} - \frac{5x}{2x+3}$

LCD $= (3x-1)(2x+3)$

$\frac{18x+27}{(3x-1)(2x+3)} - \frac{15x^2-5x}{(3x-1)(2x+3)}$

$= \frac{18x+27-15x^2+5x}{(3x-1)(2x+3)} = \boxed{\frac{-15x^2+23x+27}{(3x-1)(2x+3)}}$

7. $\frac{6x^2-24}{x+2}$

$\frac{6(x^2-4)}{x+2}$ ·

$\frac{6(x-2)(x+2)}{x+2} = \boxed{6(x-2)}$

8. $\frac{4c}{2c+2} \cdot \frac{c^2+3c+2}{c-1}$

$\frac{4c}{2(c+1)} \cdot \frac{(c+2)(c+1)}{c-1}$

$\boxed{\frac{2c(c+2)}{c-1}}$

9. $\frac{9-x^2}{x^2+x-12}$

$\frac{(3-x)(3+x)}{(x-3)(x+4)} = \boxed{\frac{-(3+x)}{x+4}}$

10. $\frac{7}{3a \cdot 5} + \frac{2}{5 \cdot 3a} = \frac{35}{15a} + \frac{6a}{15a} =$

LCD = 15a

$\boxed{\frac{35+6a}{15a}}$

11. $\frac{4}{x \cdot 3} - \frac{2}{3 \cdot x} = \frac{12}{3x} - \frac{2x}{3x} = \boxed{\frac{12-2x}{3x}}$

LCD = 3x

12. $\frac{27}{n^3 \cdot 7} - \frac{9}{7n^2 \cdot n} = \frac{189}{7n^3} - \frac{9n}{7n^3} =$

LCD = $7n^3$

$\boxed{\frac{189-9n}{7n^3}}$