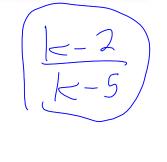
Simplifying Rational Expressions and Solving Rational Equations Test



Simplify the rational expression. State any restrictions on the variable.

1.
$$\frac{k^2 - k - 2}{k^2 - 4k - 5}$$
 = $\frac{(k-2)(k+1)}{(k-5)(k-5)}$ = $\frac{(k-2)(k+1)}{(k-5)}$ = $\frac{(k-2)(k+1)}{(k-5)}$

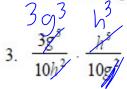


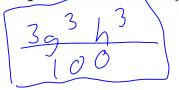
2.
$$\frac{n^4 - 10n^2 + 24}{n^4 - 9n^2 + 18}$$

$$\frac{24 - 10}{18 - 9}$$

2.
$$\frac{n^{4} - 10n^{2} + 24}{n^{4} - 9n^{2} + 18} = \frac{\left(n^{2} + 5\right)\left(n^{2} + 4\right)}{\left(n^{2} + 5\right)\left(n^{2} + 4\right)} = \frac{\left(n^{2} + 5\right)\left(n^{2} + 4\right)}{\left(n^{2} + 5\right)\left(n^{2} + 4\right)} = \frac{\left(n^{2} + 5\right)\left(n^{2} + 4\right)}{\left(n^{2} + 5\right)\left(n^{2} + 4\right)} = \frac{\left(n^{2} + 5\right)\left(n^{2} + 4\right)}{\left(n^{2} + 5\right)\left(n^{2} + 4\right)} = \frac{\left(n^{2} + 5\right)\left(n^{2} + 4\right)}{\left(n^{2} + 5\right)\left(n^{2} + 4\right)} = \frac{\left(n^{2} + 5\right)\left(n^{2} + 4\right)}{\left(n^{2} + 5\right)\left(n^{2} + 4\right)} = \frac{\left(n^{2} + 5\right)\left(n^{2} + 4\right)}{\left(n^{2} + 5\right)} = \frac{\left(n^{2} + 5\right)}{\left(n^{2} + 5\right)} = \frac{\left(n^{2} +$$

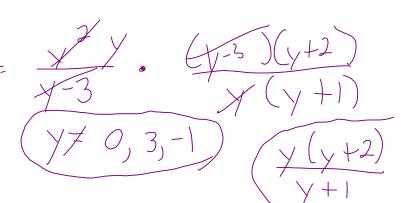
What is the product in simplest form? State any restrictions on the variable.







4.
$$\frac{y^2}{y-3} \cdot \frac{y^2-y-6}{y^2+1y}$$



What is the quotient in simplified form? State any restrictions on the variable.

5.
$$\frac{a+2}{a-5} \div \frac{a+1}{a^2-8a+15}$$

$$\frac{a+2}{a-5} \div \frac{a+1}{a^2-8a+15}$$

$$\frac{a+2}{a-5} \div \frac{a+1}{(a-5)(a-3)}$$

$$\frac{a+2}{a-5} \div \frac{a+1}{(a-5)(a-3)}$$

$$\frac{a+2}{a-5} \div \frac{a+1}{(a-3)(a-3)}$$

$$\frac{a+1}{a+1}$$

6. Find the least common multiple of $x^2 - 7x + 6$ and $x^2 + 3x - 4$.

$$(x-6)(x-1)$$
 $(x+4)(x-1)$
 $LCM = (x-1)(x+4)(x-6)$

Simplify the sum.

$$an y factor denominator$$

7. $\frac{a^2 + 7a + 10}{a^2 + 2a - 15} + \frac{10}{a - 3}$
 $\frac{a^2 + 7a + 10}{a^2 + 2a - 15} + \frac{10}{a - 3}$
 $\frac{a^2 + 7a + 10}{(a + 5)(a - 3)} + \frac{10a + 50}{(a + 5)(a - 3)}$
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Simplify the difference.

8.
$$\frac{n^{2}-10n+24}{n^{2}-13n+42} - \frac{9}{n-7} (n-6)$$

$$\frac{n^{2}-10n+24}{(n-7)(n-6)} - \frac{9n-54}{(n-7)(n-6)}$$

$$\frac{n^{2}-19n+78}{(n-7)(n-6)} = \frac{(n-7)(n-6)}{(n-7)(n-6)}$$

$$\frac{78-19}{-6-13} - \frac{(n-7)(n-6)}{(n-7)(n-6)}$$

Solve the equation. Check the solution.

9.
$$\frac{c+3}{c-8} = \frac{c-4}{c+5}$$

$$(c+3)(c+5) = (c-8)(c-4)$$

$$(c-8)(c-4)$$

$$(c-9)(c-1)$$

$$(c-9)(c-1)$$