Name:_____ Date:_____

PC: Complex Fractions Ms. Loughran

Do Now:
Perform the indicated operations and simplify.

1. $\dfrac{a}{a+2}-\dfrac{2}{3-a}-\dfrac{3a+1}{a^2-a-6}$

2. $\dfrac{x^2-9}{27+3x^2}\cdot\left(\dfrac{x^2+x-6}{x-4}\div\dfrac{6-x-x^2}{3x-12}\right)$

A fraction in which the numerator or denominator contains one or more fractions or negative exponents is called a *complex fraction*.

1. Simplify $\dfrac{2-\dfrac{1}{x}}{\dfrac{1}{x^2}-\dfrac{1}{2}}$

Method 1

Steps
1.
2.
3.
4.

Method 2

Steps
1.
2.
3.

Simplify each of the following.

2. $\dfrac{\frac{1}{a}+\frac{3}{b}}{\frac{1}{b}-\frac{3}{a}}$

3. $\dfrac{5-\frac{3}{a}}{3+\frac{1}{a}}$

4. $\dfrac{\frac{1}{2}-\frac{2}{x}}{\frac{3}{x}-\frac{1}{x^2}}$

5. $\dfrac{\frac{1}{x}+\frac{1}{y}}{\frac{1}{x}-\frac{1}{y}}$

6. $\dfrac{1-\frac{2}{n}}{\frac{4-n^2}{n}}$

7. $\dfrac{1+\frac{1}{x}}{1-\frac{1}{x^2}}$

8. $\dfrac{\frac{a}{a+b}}{1-\frac{b}{a+b}}$

9. $\dfrac{x^{-1}}{x^{-1}-y^{-1}}$

10. $\dfrac{x^{-1}+y^{-1}}{x^{-1}-y^{-1}}$

11. $\dfrac{a^{-2}-1}{1+a^{-1}}$

12. $\dfrac{\frac{1}{n}-\frac{1}{3n^2}}{1-\frac{1}{9n^2}}$

13. $\dfrac{1+a^{-1}}{a-a^{-1}}$

14. $\dfrac{x+2x^{-1}-3}{x-1-2x^{-1}}$

15. $\dfrac{2x^{-1}-2}{\frac{1-x}{x}}$

16. $\dfrac{4u^{-1}+(uv)^{-1}}{v^{-1}-5}$

17. $\dfrac{\dfrac{x}{x+3}}{1-\dfrac{x}{x+3}}$

18. $\dfrac{\dfrac{a}{a^2-b^2}}{\dfrac{1}{a+b}+\dfrac{1}{a-b}}$

19. $\dfrac{\dfrac{1}{y-3}-\dfrac{1}{y+4}}{1+\dfrac{1}{y^2+y-12}}$

20. $\dfrac{\dfrac{x}{x+1}}{\dfrac{1}{x^2-1}-\dfrac{1}{x-1}}$