

12-3 continued... **Objectives**
Simplify rational expressions.

Review (left page)...
Find any excluded values.
 $\frac{3}{4x}$ $\frac{4x=0}{4}$ $x \neq 0$

Simplify each rational expression if possible.
 $\frac{5t^3}{10t^2 + 15t}$ $\frac{m+2}{m^2 - 3m - 10}$

Apr 1-7:39 AM

A little review...
Simplify:
 $\sqrt{12} - \sqrt{75}$
 $\sqrt{4} \cdot \sqrt{3} - \sqrt{25} \cdot \sqrt{3}$
 $2\sqrt{3} - 5\sqrt{3}$
 $-3\sqrt{3}$

$\sqrt{80}$
 $\sqrt{16} \cdot \sqrt{5}$
 $4\sqrt{5}$

Solve:
 $\sqrt{x-2} = 5$
 $\frac{\sqrt{x-2}}{12} = \frac{5}{12}$
 $\sqrt{x-2} = 5$
 $x-2 = 25$
 $x = 27$

Apr 11-7:56 AM

Find any excluded values.
 $\frac{4h^4}{3h(h-2)}$ $h \neq 2$ $h \neq 0$ $\frac{4h}{3(h-2)}$

Simplify each rational expression, if possible.
 $\frac{5x^3}{20xy^2}$ $\frac{x}{4}$ $\frac{a^2}{x(2a+1)}$ $\frac{a^2}{(2a+1)}$

$\frac{(x+1)(x+1)(x+1)}{x^2+2x+1}$ $\frac{3(x+1)}{(x+1)}$ $\frac{3}{(x+1)}$

Apr 10-3:49 PM

NEW STUFF! Recall from Chapter 8 that opposite binomials can help you factor polynomials. Recognizing opposite binomials can also help you simplify rational expressions.

Consider $\frac{x-3}{3-x}$. The numerator and denominator are opposite binomials. Therefore,

Standard form? $\frac{x-3}{3-x} = \frac{x-3}{-(x-3)} = \frac{x-3}{-1(x-3)} = \frac{1}{-1} = -1$

Is the leading coefficient negative?

Apr 1-7:48 AM


Standard form? $\frac{5x-10}{4-x^2}$ $\frac{5(x-2)}{-(x^2-4)} = \frac{5(x-2)}{-(x+2)(x-2)}$

Is the leading coefficient negative? $-\frac{5}{(x+2)}$ $-\frac{5}{(x+2)}$

Apr 1-7:50 AM

$\frac{18-6r}{2r^2+8r-42}$ $\frac{-6(r-3)}{2(r-3)(r+7)}$ $\frac{-6(r-3)}{2(r-3)(r+7)}$ $-\frac{3}{r+7}$

$\frac{3x-12}{16-x^2}$



Apr 1-7:55 AM

Assignment:

Pg 870 #17-22, 44-50

17. $\frac{2n-16}{4-n^2} = \frac{2n-16}{-(n^2-4)} = \frac{2(n-8)}{-(n-2)(n+2)}$

18. $\frac{8-4x}{2x^2-12x+16} = \frac{-4x+8}{2(x^2-6x+8)} = \frac{-4(x-2)}{2(x-4)(x-2)} = \frac{-2}{x-4}$

19. $\frac{10-5r}{r^2-4r-12} = \frac{-5r+10}{(r-6)(r+2)} = \frac{-5(r-2)}{(r-6)(r+2)}$

Apr 1-8:00 AM