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Webassign Problems

Ex. $\dfrac{x^2-4}{x} \div \dfrac{x^3-2x^2}{x^2+4x} = \dfrac{x^2-4}{x} \cdot \dfrac{x^2+4x}{x^3-2x^2}$

you can rewrite this as the first fraction times the reciprocal of the second

$$= \frac{\cancel{(x-2)}(x+2) \cdot \cancel{x}(x+4)}{\cancel{x} \cdot x^2\cancel{(x-2)}} = \frac{(x+2)(x+4)}{x^2}$$

Domain?
All real numbers except 0

Handy Dandy Method Review

1) Multiply the denominators
2) Starting at the upper left cross multiply

$$\frac{3}{5} + \frac{2}{3} = \frac{9+10}{15} = \frac{19}{15}$$

$$\frac{4}{9} - \frac{2}{7} = \frac{28-18}{63} = \frac{10}{63}$$

Ex:

$$5 - \frac{4}{x+2} = \frac{5}{1} - \frac{4}{x+2} = \frac{5(x+2) - 4(1)}{x+2} =$$

so now we can use the handy dandy method to subtract

$$= \frac{5x + 10 - 4}{x+2} = \frac{5x + 6}{x+2}$$

Ex:

$$\frac{9}{x-4} + \frac{14}{4-x} = \frac{9}{x-4} - \frac{14}{x-4} = \frac{9-14}{x-4} = \frac{-5}{x-4}$$

opposites

when denominators are opposites.

1) change the second denominator to its opposite.

2) change the sign between the fractions

Ex:

$$\frac{9x}{x-6} - \frac{4}{6-x} = \frac{9x}{x-6} + \frac{4}{x-6} = \frac{9x+4}{x-6}$$

Ex: $\frac{1}{x^2-3x-4} - \frac{x}{x^2-9x+20} = \frac{1}{(x-4)(x+1)} - \frac{x}{(x-5)(x-4)} =$

These denominators are too big for the handy dandy method so lets factor them.

Now that we factored lets make a common denominator

$= \frac{1\cdot(x-5)}{(x-4)(x+1)(x-5)} - \frac{x\cdot(x+1)}{(x-4)(x+1)(x-5)}$

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

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

Domain?

All real numbers except $4, -1,$ and 5.

Ex: $-\frac{9}{x}+\frac{13}{x^2+1}+\frac{9}{x^3+x}=-\frac{9}{x}+\frac{13}{x^2+1}+\frac{9}{x(x^2+1)}$

$$=-\frac{9(x^2+1)}{x(x^2+1)}+\frac{13(x)}{x(x^2+1)}+\frac{9}{x(x^2+1)}=\frac{-9(x^2+1)+13(x)+9}{x(x^2+1)}$$

make a common denominator

$$=\frac{-9x^2-9+13x+9}{x(x^2+1)}$$

$$=\frac{-9x^2+13x}{x(x^2+1)}$$

$$=\frac{\cancel{x}(-9x+13)}{\cancel{x}(x^2+1)}$$

$$=\frac{-9x+13}{x^2+1}$$