Bellwork Alg 2A Tuesday, June 6, 2017

Solve each rational equation.

1. $\frac{x}{x^2+3x+2} = \frac{6}{x^2+7x+10}$

2. $\frac{2}{x-3} + \frac{x}{x+6} = \frac{42}{x^2+3x-18}$

3. $\frac{-33}{x^2+3x-28} - \frac{3}{x+7} = \frac{x}{x-4}$

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ALG 2A BELLWORK TUE 6-6-17

Answers

(1) $\frac{x}{x^2+3x+2} = \frac{6}{x^2+7x+10}$ → $\frac{x+5}{x+5}\cdot\frac{x}{(x+2)(x+1)} = \frac{6}{(x+2)(x+5)}\cdot\frac{x+1}{x+1}$

$\frac{x^2+5x}{(x+5)(x+2)(x+1)} = \frac{6x+6}{(x+2)(x+5)(x+1)}$

$x^2+5x = 6x+6$

$x^2-x-6=0$

$(x-3)(x+2)=0$

$x=3,-2$

$x=3$

(2) $\frac{2}{x-3}+\frac{x}{x+6}=\frac{42}{x^2+3x-18}$

$(x+6)(x-3)\left(\frac{2}{x-3}+\frac{x}{x+6}\right)=\left(\frac{42}{(x+6)(x-3)}\right)(x+6)(x-3)$

$2(x+6)+x(x-3)=42(1)$

$2x+12+x^2-3x=42$

$x^2-x+12=42$

$x^2-x-30=0$

$(x-6)(x+5)=0$

$x=-5,6$

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(3) $\frac{-33}{x^2+3x-28}-\frac{3}{x+7}=\frac{x}{x-4}$

$(x+7)(x-4)\left(\frac{-33}{(x+7)(x-4)}-\frac{3}{x+7}\right)=\left(\frac{x}{x-4}\right)(x+7)(x-4)$

$-33(1)-3(x-4)=x(x+7)$

$-33-3x+12=x^2+7x$

$-3x-21=x^2+7x$

$0=x^2+10x+21$

$0=(x+3)(x+7)$

$x=-7,-3$

$x=-3$