Bellwork Alg 2 Tuesday, March 5, 2019

1. Sara and Zeinab jog at the same speed. Zeinab takes 30 mintues longer to jog 24 miles than it takes Sara to jog 21 miles. Find the amount of time each person jogged.

time Sara jogged =

time Zeinab jogged =

Solve each.

2. $\frac{2}{x^2+4x-5} = \frac{x}{x^2+7x+10}$

3. $\frac{4x}{x+4} - \frac{15}{x^2+3x-4} = \frac{-3}{x-1}$

4. $\frac{x-6}{2x^2+2x-4} + \frac{x}{2x-2} = \frac{1}{2}$

Bellwork Alg 2 Tuesday, March 5, 2019

ANSWERS

1. Sara and Zeinab jog at the same speed. Zeinab takes 30 mintues longer to jog 24 miles than it takes Sara to jog 21 miles. Find the amount of time each person jogged.

time Sara jogged = 3½ hrs

time Zeinab jogged = 4 hrs

	d	r	t
Sara	21	r	t
Zeinab	24	r	t+30

$r = \frac{21}{t}$ $r = \frac{24}{t+30}$

$d = r \cdot t \longrightarrow r = \frac{d}{t}$

$t = 210 \text{ min} = 3\frac{1}{2} \text{ hrs}$

$t + 30_{\text{min}} = 4 \text{ hrs}$

$\frac{21}{t} = \frac{24}{t+30}$

$21(t+30) = 24t$

$21t + 630 = 24t$ (−21t, −21t)

$\frac{630}{3} = \frac{3t}{3}$

$t = 210 \text{ min}$

Solve each.

2. $\frac{2}{x^2+4x-5} = \frac{x}{x^2+7x+10}$

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

$2(x+2) = x(x-1)$

$2x+4 = x^2 - x$ (−2x, −4)

$0 = x^2 - 3x - 4$

$0 = (x-4)(x+1)$

$x = -1, 4$

3. $\frac{4x}{x+4} - \frac{15}{x^2+3x-4} = \frac{-3}{x-1}$

$(x+4)(x-1)\left[\frac{4x}{x+4} - \frac{15}{(x+4)(x-1)}\right] = \left(\frac{-3}{x-1}\right)(x+4)(x-1)$

$4x(x-1) - 15 = -3(x+4)$

$4x^2 - 4x - 15 = -3x - 12$ (+3x, +12, +3x, +12)

$4x^2 - x - 3 = 0$

-12, -4, $+3$, -1

	x	−1
4x	$4x^2$	−4x
+3	+3	−3

$0 = (x-1)(4x+3)$

$x = -3/4, 1$

$x = -3/4$

4. $\frac{x-6}{2x^2+2x-4} + \frac{x}{2x-2} = \frac{1}{2}$

$2(x^2+x-2)$

$2(x+2)(x-1)$ $\quad 2(x-1)$

$2(x+2)(x-1)\left[\frac{x-6}{2(x+2)(x-1)} + \frac{x}{2(x-1)}\right] = \left(\frac{1}{2}\right)2(x+2)(x-1)$

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

$x - 6 + x^2 + 2x = x^2 + x - 2$ ($-x^2$, $-x^2$)

$3x - 6 = x - 2$ (−x, −x)

$2x - 6 = -2$ (+6, +6)

$2x = 4$ (÷2, ÷2)

$x = 2$