What's the Score?

- If you have any difficulty with these solutions, please contact your teacher before continuing.

1. a. $\dfrac{4}{2x-1} = \dfrac{1}{x-2}$

$$\left(\frac{4}{2x-1}\right)(2x-1)(x-2) = \left(\frac{1}{x-2}\right)(2x-1)(x-2)$$

$$\left(\frac{4}{\cancel{2x-1}}\right)(\cancel{2x-1})(x-2) = \left(\frac{1}{\cancel{x-2}}\right)(2x-1)(\cancel{x-2})$$

$$4(x-2) = 1(2x-1)$$

$$4x-8 = 2x-1$$

$$2x-8 = -1$$

$$2x = 7$$

$$x = \frac{7}{2}, \quad x \neq \frac{1}{2}, 2$$

Verify $x = \frac{7}{2}$.

Left Side	Right Side
$\dfrac{4}{2x-1}$	$\dfrac{1}{x-2}$
$\dfrac{4}{2\left(\frac{7}{2}\right)-1}$	$\dfrac{1}{\left(\frac{7}{2}\right)-2}$
$\dfrac{4}{7-1}$	$\dfrac{1}{\left(\frac{7}{2}\right)-\left(\frac{4}{2}\right)}$
$\dfrac{4}{6}$	$\dfrac{1}{\left(\frac{3}{2}\right)}$
$\dfrac{2}{3}$	$\dfrac{2}{3}$

What's the Score?

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1. b.

$$\frac{12}{10+y}+\frac{12}{10-y}=\frac{5}{2}$$

$$\left[\left(\frac{12}{10+y}\right)(2)(10+y)(10-y)\right]+\left[\left(\frac{12}{10-y}\right)(2)(10+y)(10-y)\right]=\left[\left(\frac{5}{2}\right)(2)(10+y)(10-y)\right]$$

$$\left[\left(\frac{12}{\cancel{10+y}}\right)(2)(\cancel{10+y})(10-y)\right]+\left[\left(\frac{12}{\cancel{10-y}}\right)(2)(10+y)(\cancel{10-y})\right]=\left[\left(\frac{5}{\cancel{2}}\right)(\cancel{2})(10+y)(10-y)\right]$$

$$[12(2)(10-y)]+[(12)(2)(10+y)]=[(5)(10+y)(10-y)]$$

$$240-24y+240+24y=500-50y+50y-5y^2$$

$$480=500-5y^2$$

$$5y^2-20=0$$

$$5(y^2-4)=0$$

$$5(y-2)(y+2)=0$$

$$y-2=0 \quad y+2=0$$

$$y=2 \quad y=-2,\ y\neq 10,-10$$

You must verify both solutions. (See next page.)