Pre-Calc Unit Lesson 10: Simplifying Complex Fractions/Radicals

Simplify the following problems:

1. $\dfrac{\dfrac{5}{x}}{y} = $ _____

2. $\dfrac{\dfrac{5}{x}+3}{y} = $ _____

Multiply top and bottom by x in both problems and get:

$\dfrac{5}{xy}$ $\dfrac{5+3x}{xy}$

3. $\dfrac{4x(2x-3)-(x^2-3x)\bullet 4}{(2x-3)^2} = $

$\dfrac{8x^2-12x-4x^2+12x}{(2x-3)^2} = $

$\dfrac{4x^2}{(2x-3)^2}$

4. $\sqrt{x}(x+1) = x\sqrt{x}+\sqrt{x} = x^{\frac{3}{2}}+x^{\frac{1}{2}}$

5. $10x^{-3} =$

6. $(10x)^{-3}$

$\dfrac{10}{x^3}$

$\dfrac{1}{1000x^3}$

7. $\sin x \cos x \csc x \bullet x^2 + 7x^{\frac{1}{2}} \tan x \bullet x^{-\frac{1}{2}} =$

Answer: $\underline{x^2\cos x + 7\tan x}$

8. $\dfrac{4(x+3) \bullet x - 2x \bullet \dfrac{1}{x-3}}{y} =$

$\dfrac{4x^2 + 12x - \dfrac{2x}{x-3}}{y} = \dfrac{4x^2(x-3) + 12x(x-3) - 2x}{y(x-3)} =$

$\dfrac{4x^3 - 12x^2 + 12x^2 - 36x - 2x}{y(x-3)} = \dfrac{4x^3 - 38x}{y(x-3)}$

9. $2x^{-\frac{1}{2}} + 4x^{\frac{1}{2}} =$

$$\frac{2}{\sqrt{x}} + 4\sqrt{x} = \frac{2}{\sqrt{x}} + \frac{4\sqrt{x}\sqrt{x}}{\sqrt{x}} = \frac{2+4x}{\sqrt{x}}$$

or factor from the beginning and get $2x^{-\frac{1}{2}}(1+2x)$

Homework: Ditto Simplifying Complex Fractions/Radicals

<u>TEST on Pre-Calc Unit</u>

The following items are not in any section, but should be reviewed:

$\sin^2 x = (\sin x)^2 \neq \sin x^2 = \sin(x^2)$

Find the domain and range of $f(x) = [x]$

If $\tan x = 3$, then find $\sin x$.

Review? P. 36-37 #1-3, 7-14, 25-28, 39, 40