(1.) $\dfrac{\sqrt[3]{3ax}}{\sqrt[3]{4a^2}}$

$= \dfrac{\sqrt[3]{(3ax)} * \sqrt[3]{(2a)}}{\sqrt[3]{(4a^2)} * \sqrt{(2a)}}$ multiply by this form of 1

$\dfrac{\sqrt[3]{(6a^2x)}}{8a}$ multiply and take cube root of the bottom

(2.) $\dfrac{1}{\sqrt{x} - \sqrt{y}}$

$= \dfrac{\sqrt{x} + \sqrt{y}}{(\sqrt{x} - \sqrt{y})\sqrt{x} + \sqrt{y})}$ multiply by this form of 1

$= (\sqrt{x} + \sqrt{y})/(x - y)$ foil multiply combine like terms

(3.) $\dfrac{\sqrt{3xy}}{\sqrt{2x} - \sqrt{3y}}$ here is the problem

$= \dfrac{\sqrt{(3xy)} * [\sqrt{(2x)} + \sqrt{(3y)}]}{[\sqrt{(2x)} - \sqrt{(3y)}]\ [\sqrt{(2x)} + \sqrt{(3y)}]}$ multiply by this form of the number "1"

$= \dfrac{\sqrt{(6x^2y + 9xy^2)}}{2x - 3y}$ multiply thru foil multiply combine like terms

(4.) $\dfrac{2}{3 - \sqrt{5}}$ here is the problem

$= \dfrac{2(3 + \sqrt{5})}{(3 - \sqrt{5})(3 + \sqrt{5})}$ multiply by this form of 1

$= (6 + 2\sqrt{5})/(3 - 5)$ multiply

$= (-1/2)(6 + 2\sqrt{5})$ subtract on bottom

$= -3 - \sqrt{5}$ multiply thru parentheses

(5.) $\dfrac{12}{\sqrt{5} - 2}$ here is the problem

$= \dfrac{12(\sqrt{5} + 2)}{(\sqrt{5} - 2)(\sqrt{5} + 2)}$ multiply by this form of 1

$= (60\sqrt{5} + 24)/(5 - 4)$ foil multiply combine like terms

$= 60\sqrt{5} + 24$ subtract and divide by 1

(6.) $\dfrac{4}{\sqrt{5} + \sqrt{7}}$ here is the problem

$= \dfrac{4(\sqrt{5} - \sqrt{7})}{(\sqrt{5} + \sqrt{7})(\sqrt{5} - \sqrt{7})}$ multiply by this form of 1

$= \dfrac{4\sqrt{5} - 4\sqrt{7}}{5 - 7}$ multiply thru parentheses

$= (4\sqrt{5} - 4\sqrt{7})/(-2)$ foil multiply combine like terms

$= -2\sqrt{5} + 2\sqrt{7}$ subtract

$= 2\sqrt{7} - 2\sqrt{5}$ divide thru by -2

just rearrange like this

(7.) $\dfrac{3}{\sqrt{2} - \sqrt{5}}$ here is the problem

$= \dfrac{3(\sqrt{2} + \sqrt{5})}{(\sqrt{2} - \sqrt{5})(\sqrt{2} + \sqrt{5})}$ multiply by this form of 1

$= (3\sqrt{2} + 3\sqrt{5})/(2 - 5)$ multiply

$= (3\sqrt{2} + 3\sqrt{5})/(-3)$ subtract

$= -\sqrt{2} - \sqrt{5}$ divide thru by -3

(8.) $\dfrac{1 + 5\sqrt{2}}{4\sqrt{2} - 3}$ here is the problem

$= \dfrac{(1 + 5\sqrt{2})(4\sqrt{2} + 3)}{(4\sqrt{2} - 3)(4\sqrt{2} + 3)}$ multiply by this form of the number "1"

$= \dfrac{4\sqrt{2} + 3 + 40 + 15\sqrt{2}}{32 - 9}$ foil multiply

foil multiply combine like terms

$= (43 + 19\sqrt{2})/(23)$ combine like terms

(9.) $\dfrac{2 + \sqrt{11}}{3\sqrt{11} - 7}$ here is the problem

$= \dfrac{(2 + \sqrt{11})(3\sqrt{11} + 7)}{(3\sqrt{11} - 7)(3\sqrt{11} + 7)}$ multiply by this form of the number "1"

$= \dfrac{6\sqrt{11} + 14 + 33 + 7\sqrt{11}}{99 - 49}$ foil multiply

foil multiply combine like terms

$= (47 + 13\sqrt{11})/(50)$ combine like terms

(10.) $\dfrac{\sqrt{3} - 1}{\sqrt{3} + 1}$ here is the problem

$= \dfrac{(\sqrt{3} - 1)(\sqrt{3} - 1)}{(\sqrt{3} + 1)(\sqrt{3} - 1)}$ multiply by this form of "1"

$= \dfrac{3 - 2\sqrt{3} + 1}{3 - 1}$ foil multiply combine like terms

$= (4 - 2\sqrt{3})/(2)$ combine like terms

$= \quad 2 - \sqrt{3}$ divide thru by 2