R8

Dr. ZABOAWI

#10) $\sqrt[3]{54} = \sqrt[3]{27 \times 2} = \sqrt[3]{3^3 \times 2} = 3\sqrt[3]{2}$

#20) $\sqrt{5x}\ \sqrt{20x^3} = \sqrt{100x^4} = 10x^2$

#30) $(\sqrt{5}-2)(\sqrt{5}+3) = 5 + 3\sqrt{5} - 2\sqrt{5} - 6 = -1 + \sqrt{5}$

#40) $8xy - \sqrt{25x^2y^2} + \sqrt[3]{8x^3y^3}$

$8xy - \sqrt{(5xy)^2} + \sqrt[3]{(2xy)^3} = 8xy - 5xy + 2xy = 5xy$

#50) $\dfrac{-2}{\sqrt[3]{9}} = \dfrac{-2}{\sqrt[3]{3^2}} = \dfrac{-2\sqrt[3]{3}}{\sqrt[3]{3^2}\sqrt[3]{3}} = \dfrac{-2\sqrt[3]{3}}{\sqrt[3]{3^3}}$

$= \dfrac{-2\sqrt[3]{3}}{3}$

#60) $16^{-3/2} = \left(2^4\right)^{-3/2} = 2^{-6} = \dfrac{1}{2^6} = \dfrac{1}{64}$

#70) $(xy)^{1/4}\left(x^2y^2\right)^{1/2} = (xy)^{1/4} \cdot xy = xy\sqrt[4]{xy}$

Remeber $(xy)^{1/4} = \sqrt[4]{xy}$

$a^{m/n} = \sqrt[n]{a^m}$

R8

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#80)
$$\frac{\sqrt{x^2+1} - \frac{x \cdot 2x}{2\sqrt{x^2+1}}}{x^2+1}$$

$$= \frac{\sqrt{x^2+1} - \frac{x^2}{\sqrt{x^2+1}}}{(x^2+1)}$$

$$= \frac{(x^2+1) - x^2}{(x^2+1)\sqrt{(x^2+1)}} = \frac{1}{(x^2+1)\sqrt{x^2+1}}$$

Multiply Top and Bottom by $\sqrt{x^2+1}$

$$= \frac{1}{(x^2+1)\sqrt{x^2+1}} \cdot \frac{\sqrt{(x^2+1)}}{\sqrt{(x^2+1)}}$$

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

#90) $6x^{1/2}(2x+3) + x^{3/2} \cdot 8 \quad ; \quad x \geq 0$

$12x^{3/2} + 18x^{1/2} + 8x^{3/2} = 20x^{3/2} + 18x^{1/2}$

Remember that $x^{3/2} = \sqrt{x^3} = x\sqrt{x}$

$$\Rightarrow 20x^{3/2} + 18x^{1/2} = 20x\sqrt{x} + 18\sqrt{x}$$

$$= 2\sqrt{x}\,[10x + 9]$$