S 74 Nr 25

a) $\left(a^{\frac{m}{3}} \cdot a^{\frac{m}{6}}\right) : a^{\frac{m}{4}} = \left(a^{\frac{1}{3}} \cdot a^{\frac{1}{6}} \cdot a^{-\frac{1}{4}}\right)^m = \left(a^{\frac{4}{12}+\frac{2}{12}-\frac{3}{12}}\right)^m$

$= \left(a^{\frac{3}{12}}\right)^m = \left(a^{\frac{1}{4}}\right)^m = \underline{\underline{a^{\frac{m}{4}}}}$

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b) $\sqrt[3]{a^5 b} \cdot \sqrt[3]{a b^2} = \left(a^5 \cdot b \cdot a \cdot b^2\right)^{\frac{1}{3}} = \left(a^6 \cdot b^3\right)^{\frac{1}{3}} = a^{\frac{6}{3}} \cdot b^{\frac{3}{3}} = \underline{\underline{a^2 \cdot b}}$

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c) $\frac{a^6}{b^{m+3}} : \frac{a^8}{b^{m+4}} = \frac{a^6}{b^{m+3}} \cdot \frac{b^{m+4}}{a^8} = \frac{a^6 \cdot b^m \cdot b^4}{a^8 \cdot b^m \cdot b^3} = \underline{\underline{\frac{b}{a^2}}}$

$= a^{6-8} \cdot b^{m-m} \cdot b^{4-3}$

$= a^{-2} \cdot b^0 \cdot b^1 = \underline{\underline{\frac{b}{a^2}}}$

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d) $\left(\frac{2x^2}{3y^{\frac{3}{8}}}\right) : \left(\frac{9x^{-3}}{4 \cdot y^{-\frac{3}{4}}}\right) = \frac{2x^2}{3y^{\frac{3}{8}}} \cdot \frac{4y^{-\frac{3}{4}}}{9 \cdot x^{-3}} =$

$= \frac{2x^2 \cdot y^{-\frac{3}{8}} \cdot y^{-\frac{3}{4}} \cdot x^3 \cdot 4}{3 \cdot 9} = \frac{8}{27} \cdot x^{2+3} \cdot y^{-\frac{3}{8}-\frac{3}{4}}$

$= \frac{8}{27} \cdot x^5 \cdot y^{-\frac{3}{8}-\frac{6}{8}} = \underline{\underline{\frac{8}{27} \cdot x^5 \cdot y^{-\frac{9}{8}}}}$

S 74 Nr. 26

a) $2^{\sqrt{2}} \approx 3{,}3220$; b) $5^{\sqrt{6}} = 51{,}5371$; c) $\left(\frac{3}{4}\right)^{\sqrt{2}} \approx 0{,}6657$

d) $0{,}28^{\sqrt[3]{7}} \approx 0{,}0876$; e) $7^{-\sqrt{2}} \approx 0{,}0638$

f) $\left(3^{\sqrt{2}}\right)^{\sqrt{3}} = 3^{\sqrt{2} \cdot \sqrt{3}} = 3^{\sqrt{2 \cdot 3}} = 3^{\sqrt{6}} \approx 14{,}7470$

g) $\sqrt{5}^{\sqrt{5}} = \left(5^{\frac{1}{2}}\right)^{\sqrt{5}} = 5^{\frac{\sqrt{5}}{2}} \approx 6{,}0461$