DPP–2 Solution

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1. $a^{\frac{-3}{4}\times\frac{2}{8}}$

$a^{-3\times2} = a^{-6}$

2. $\left(a^{\frac{-2}{3}}\right)^{\frac{3}{4}}\left(6^{\frac{5}{6}}\right)^{\frac{3}{4}}$

$a^{-1/2}\cdot b^{5/8}$

3. $\left(a^{+\frac{1}{2}}\right)^{-2}(b^{-3})^{-2}$

a^1b^6

4. $\left(a^{\frac{2}{6}}\right)^{-4/3}(b^{5/4})^{\frac{-4}{3}}$

$a^{-8}b^{-5/3}$

5. $\left[\left(a^4b^3\right)^{1/3}\right]^6$

$(a^4b^3)^2$

$(a^4)^2(b^3)^2$

9^8b^6

6. $\left[\left(x^9y^{-8}\right)^{1/6}\right]^{-3}$

$(x^9y^{-8})^{-\frac{1}{2}}$

$(x^9)^{-1/2}(y^{-8})^{-1/2}$

$x^{-9/2}y^4$

7. $\left[x^2(x^{-3})^{1/4}\right]^{1/8}$

$(x^2)^{1/8}\left(x^{-3/4}\right)^{1/8}$

$x^{1/4}x^{-3/32}$

$x^{\frac{1}{4}-\frac{3}{32}} = x^{5/32}$

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8. $(a^{-3}b^4)^{1/2}(a^2b^{-8})^{\frac{1}{4}}$

$(a^{-3})^{1/2}(b^4)^{1/2}(a^2)^{1/4}(b^{-8})^{1/4}$

$a^{-3/2}b^2a^{1/2}b^{-2}$

$a^{-\frac{3}{2}+\frac{1}{2}} = a^{-1}$

9. $\left[x^{-2}(y^5)^{1/2}\right]^{1/4} \cdot \left[x(y^3)^{1/4}\right]^{1/2}$

$(x^{-2})^{1/4}\left(y^{5/2}\right)^{1/4}x^{1/2}\left(y^{3/4}\right)^{1/2}$

$x^{-1/2}y^{5/8}x^{1/2}y^{3/8}$

$y^{\frac{5}{8}+\frac{3}{8}} = y^1$

10. $\left(\frac{8x^3}{27a^{-3}}\right)^{2/3} = \left[\frac{2^3x^3}{3^3(a^{-1})^3}\right]^{2/3}$

$\left[\left(\frac{2x}{3a^{-1}}\right)^3\right]^{\frac{2}{3}} = \left(\frac{2x}{3a^{-1}}\right)^2$

$= \frac{4x^2}{9a^{-2}} = \frac{4}{9}x^2a^2$

11. $\left(\frac{64x^3}{27a^{-3}}\right)^{-\frac{2}{3}} = \frac{4^3x^3}{3^3(a^{-1})^3}\Bigg]^{-2/3}$

$\left[\left(\frac{4x}{3a^{-1}}\right)^3\right]^{-\frac{2}{3}} = \left(\frac{4x}{3a^{-1}}\right)^{-2}$

$= \left(\frac{3a^{-1}}{4x}\right)^2 = \frac{9a^{-2}}{16x^2} = \frac{9}{16}x^{-2}a^{-2}$

12. $(a^6b^{-2}c^{-8})^{1/3} \cdot (a^{-6}b^4c^{-1})^{\frac{1}{4}}$

$(a^6)^{1/3}(b^{-2})^{1/3}(c^{-8})^{1/3} \cdot (a^{-6})^{\frac{1}{4}}(b^4)^4.\,(c^{-1})^{1/4}$

$a^2 \cdot a^{-3/2}b^{-2/3}b^1 \cdot c^{-8/3}c^{-1/4}$

$a^{1/2}b^{1/3}c^{-35/12}$

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13. $\sqrt{\frac{a^{-2/3}b^4c^{-1/3}}{a^2b^4c^{-1}}}$

$(a^{-2/3-2}c^{-1/3}+1)^{1/2}$

$(a^{-8/3}c^{2/3})^{1/2}$

$(a^{-8/3})^{1/2}(c^{2/3})^{1/2} = a^{-4/3}c^{1/3}$

14. $\frac{(ab^{-2}c^3)^{1/2}}{\left[(a^3b^2c^{-3})^{1/3}\right]^{-1}} = (ab^{-2}c^3)^{1/2}.(a^3b^2c^{-3})^{1/3}$

$= a^{1/2}b^{-1}c^{3/2}a^1b^{2/3}c^{-1}$

$= a^{3/2}b^{-1/3}c^{1/2}$

15.

$\frac{(a^{-1})^7(b^2)^7}{(a^2)^7(b^{-4})^7} = \frac{a^{-7}b^{14}}{a^{14}b^{-28}} \cdot \frac{a^{10}b^{-15}}{a^{-15}b^{25}}$

$\frac{(a^3)^{-5}(b^{-5})^{-5}}{(a^{-2})^{-5}(b^3)^{-5}} = \frac{a^3}{a^{-1}} \cdot \frac{b^{-1}}{a^{-3}} = a^4b^2$