toets 2019

1,5 (1) a) $\sqrt[4]{\frac{81}{16}} = \frac{\sqrt[4]{81}}{\sqrt[4]{16}} = \boxed{\frac{3}{2}}$

1,5 b) $27^{-2/3} = \sqrt[3]{\frac{1}{27}}^{2} = \left(\frac{1}{3}\right)^2 = \boxed{\frac{1}{9}}$

1,5 c) $(-5)^{-3} = \left(-\frac{1}{5}\right)^3 = \boxed{-\frac{1}{125}}$

1,5 d) $\left(\frac{9}{4}\right)^{1,5} = \left(\frac{9}{4}\right)^{3/2} = \left(\sqrt{\frac{9}{4}}\right)^3 = \frac{3^3}{2^3} = \boxed{\frac{27}{8}}$

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

$= a^{2-1} \cdot b^{8-8} \cdot c^{-2/3-1/3} = a\, b^0\, c^{-1} = \boxed{\frac{a}{c}}$

2 b) $\sqrt{64\sqrt[3]{a^{24} \cdot b^{13}}} = 8\, a^{\frac{24}{6}} b^{\frac{13}{6}}$

$= 8\, a^4 \cdot b^{12/6} \cdot b^{1/6}$

$= 8\, a^4 b^2 \sqrt[6]{b}$

3 c) $\frac{4^{-3} \cdot a^{-4} \cdot 16\, b^{-1/3}}{3^{-2} \cdot 9\, b^{2/3} \cdot a^{-7}} = \frac{4^{-3} \cdot 4^2\, a^{-4} \cdot b^{-1/3}}{3^{-2} \cdot 3^2\, b^{2/3}\, a^{-7}}$

$= 4^{-1} \cdot a^3 \cdot b^{-1} = \frac{a^3}{4b}$

2 d) $\sqrt[3]{a^3 + a^3} = \sqrt[3]{2a^3} = \sqrt[3]{2} \cdot a$

(3) $4x^{-\frac{3}{5}} = \frac{2}{3}$

$x^{-\frac{2}{5}} = \frac{2}{12} = \frac{1}{6}$

$x^{3/5} = 6$

$x = \left(\sqrt[3]{6}\right)^5$

$x = 6\sqrt[3]{36}$