1 265

a) $\left(-\frac{3}{4}\right)^{-2}=\left(-\frac{4}{3}\right)^{2}=\boxed{\frac{16}{9}}$ (5 pto)

b) $\left(2-\frac{1}{2}\right)^{-1}=\left(\frac{3}{2}\right)^{-1}=\boxed{\frac{2}{3}}$ (5 pto)

2 266

a) $\sqrt[5]{64}=\sqrt[5]{2^5\cdot 2}=2\cdot\sqrt[5]{2}$ (2 p)

b) $2x^2y\sqrt{x^4y^3}=2x^2y\sqrt{x^4y^2y^3}=2x^4y^2\sqrt{y}$ (3 p)

c) $\sqrt[5]{\frac{5x^{10}}{y^8}}=\sqrt[5]{\frac{5(x^2)^5}{y^5\cdot y^3}}=\frac{x^2}{y}\sqrt[5]{\frac{5}{y^3}}$ (2 p)

otra forma: $\sqrt[5]{\frac{5x^{10}}{y^8}}=\sqrt[5]{\frac{5(x^2)^5\cdot y^2}{y^8\cdot y^2}}=\sqrt[5]{\frac{5(x^2)^5\cdot y^2}{y^{10}}}=\frac{x^2}{y^2}\sqrt[5]{5y^2}$

d) $\frac{xy^2}{3}\sqrt{27xy^3}=\frac{xy^2}{3}3y\sqrt{3xy}=xy^3\sqrt{3xy}$ (3 p)

3 268

a) $3\sqrt{2}-3\sqrt{8}+3\sqrt{18}=3\sqrt{2}-3\sqrt{2^2\,2}+3\sqrt{3^2\,2}=3\sqrt{2}-3\times 2\sqrt{2}+3\times 3\sqrt{2}=$

$=(3-6+9)\sqrt{2}=\boxed{6\sqrt{2}}$ [5 p]

b) $3\sqrt{x}-4\sqrt{x}+2\sqrt{36x}-5\sqrt{x-\frac{9x}{25}}=-\sqrt{x}+2\sqrt{6^2x}-5\sqrt{\frac{25x-9x}{25}}=-\sqrt{x}+12\sqrt{x}-5\sqrt{\frac{25x-9x}{25}}=$

$=-\sqrt{x}+12\sqrt{x}-5\sqrt{\frac{16x}{25}}=11\sqrt{x}-5\frac{4}{5}\sqrt{x}=\boxed{7\sqrt{x}}$ [5 p]

4 105

$\frac{9+\sqrt[3]{729}}{\sqrt{27}\sqrt{3}}=\frac{9+9}{\sqrt{81}}=\frac{18}{9}=\boxed{2}$

5 358

$3\sqrt{2}+4\sqrt{8}-\sqrt{32}+\sqrt{50}=3\sqrt{2}+4\cdot 2\sqrt{2}-4\sqrt{2}+5\sqrt{2}=$

$=(3+8-4+5)\sqrt{2}=\boxed{12\sqrt{2}}$

6 399

$\sqrt[6]{\frac{2}{3}}$

7 1190

a) $\sqrt{\frac{2}{3}}\sqrt[3]{\frac{2}{3}}\cdot\sqrt[4]{\frac{3}{2}}=\sqrt[12]{\frac{2^{6\times}2^{4\times}3^3}{3^{6\times}3^{4\times}2^3}}=\boxed{\sqrt[12]{\frac{2^7}{3^7}}=\sqrt[12]{\frac{128}{2187}}}$ [5 p]

b) $\left(\sqrt{\frac{x}{y}}-\sqrt{\frac{y}{x}}\right)\sqrt{xy}=\sqrt{\frac{x}{y}}\sqrt{xy}-\sqrt{\frac{y}{x}}\sqrt{xy}=\sqrt{\frac{x}{y}xy}-\sqrt{\frac{y}{x}xy}=$

$=\sqrt{x^2}-\sqrt{y^2}=\boxed{x-y}$ [5 p]

8
1537

$$\frac{1}{3}\sqrt{20}+\frac{5}{12}\sqrt{80}-\frac{4}{21}\sqrt{245}=\frac{1}{3}\sqrt{4\times 5}+\frac{5}{12}\sqrt{16\times 5}-\frac{4}{21}\sqrt{49\times 5}=\frac{1}{3}\cdot 2\sqrt{5}+\frac{5}{12}\,4\sqrt{5}-\frac{4}{21}\,7\sqrt{5}=$$
$$=\left(\frac{2}{3}+\frac{5}{3}-\frac{4}{3}\right)\sqrt{5}=\boxed{\sqrt{5}}$$

9
1542

$$\sqrt[5]{\frac{3}{2}\sqrt{4\times 3^3}}=\sqrt[5]{\sqrt{\left(\frac{3}{2}\right)^2 4\times 3^3}}=\sqrt[5]{\sqrt{\frac{3^2}{2^2}\times 4\times 3^3}}=\sqrt[10]{\frac{3^2}{2^2}\times \cancel{4}\times 3^3}=\sqrt[10]{3^2\times 3^3}=\sqrt[10]{3^5}=\boxed{\sqrt{3}}$$

10
1543

$$\sqrt[12]{a^8 b^3}$$

11
1567

$$\frac{\sqrt{5}-2}{\sqrt{5}+2}=\frac{(\sqrt{5}-2)(\sqrt{5}-2)}{(\sqrt{5}+2)(\sqrt{5}-2)}=\frac{5-4\sqrt{5}+4}{1}=\boxed{9-4\sqrt{5}}$$

12
1573

a) $$\frac{\sqrt[3]{\frac{a}{b}\sqrt{\frac{b}{a}}}}{\sqrt[4]{b\sqrt[3]{\frac{a^2}{b}}}}=\sqrt[12]{\frac{\frac{a^4}{b^4}\,\frac{b^2}{a^2}}{b^3\,\frac{a^2}{b}}}=\sqrt[12]{\frac{1}{b^4}}=\boxed{\sqrt[3]{\frac{1}{b}}=\frac{1}{\sqrt[3]{b}}}$$ [6 p]

b) $$\frac{\sqrt{2}-1}{\sqrt{2}+1}=\frac{(\sqrt{2}-1)(\sqrt{2}-1)}{(\sqrt{2}+1)(\sqrt{2}-1)}=\frac{3-2\sqrt{2}}{1}=\boxed{3-2\sqrt{2}}$$ [4 p]

13
1575

$a^{55/24}$