

$$\#1. a) \left( \frac{9z^6}{16y^2} \right)^{-1/2}$$

$$\frac{1}{\left( \frac{9z^6}{16y^2} \right)^{1/2}}$$

$$\frac{1}{\sqrt{\frac{9z^6}{16y^2}}}$$

$$\frac{1}{\frac{\sqrt{9z^6}}{\sqrt{16y^2}}}$$

$$\frac{1}{\frac{3z^3}{16y}}$$

$$1 \div \frac{3z^3}{16y}$$

$$1 \cdot \frac{16y}{3z^3}$$

$$\boxed{\frac{16y}{3z^3}}$$

$$b) \left( \frac{343}{1331} \right)^{1/3}$$

$$\sqrt[3]{\frac{343}{1331}}$$

$$\frac{\sqrt[3]{343}}{\sqrt[3]{1331}}$$

$$\frac{7}{11}$$

$$\boxed{\frac{7}{11}}$$

$$c) \frac{(3mn^3)^2 (3m^4)}{9mn}$$

$$9mn$$

$$\frac{(9m^2n^6)(3m^4)}{9mn}$$

$$9mn$$

$$\frac{27m^6n^6}{9mn}$$

$$9mn$$

$$\boxed{3m^5n^5}$$

$$d) \sqrt[3]{x^{3/4} y^3 z^{1/2}}$$

$$(x^{3/4})^{1/3} (y^3)^{1/3} (z^{1/2})^{1/3}$$

$$x^{3/12} y^{3/3} z^{1/6}$$

$$\boxed{x^{1/4} y z^{1/6}}$$

$$\#2. a) \sqrt[4]{6561} = \boxed{9}$$

$$b) \sqrt[5]{243a^6b^{10}}$$

$$\sqrt[5]{243} \sqrt[5]{a^6} \sqrt[5]{b^{10}}$$

$$3(a^6)^{1/5} b^2$$

$$\boxed{3a^{6/5} b^2}$$

$$c) 4^{5/2}$$

$$\sqrt{4^5}$$

$$\sqrt{1024}$$

$$\boxed{32}$$

$$d) \sqrt[4]{-16}$$

$$\boxed{\text{pas possible}}$$

$$\#3. a) \sqrt{142^4}$$

$$(142^4)^{1/2}$$

$$142^{4/2}$$

$$142^2$$

$$b) [(7^2)^{1/5}]^{2/3}$$

$$(7^{2/5})^{2/3}$$

$$(\sqrt[5]{7^2})^{2/3}$$

$$\boxed{\sqrt[3]{(\sqrt[5]{49})^2}}$$

$$c) 12^{2/5}$$

$$\sqrt[5]{12^2}$$

$$\boxed{\sqrt[5]{144}}$$

$$d) (\sqrt[3]{\sqrt{168}})^{1/2}$$

$$((\sqrt{168})^{1/3})^{1/2}$$

$$(\sqrt{168})^{1/6}$$

$$((168)^{1/2})^{1/6}$$

$$\boxed{168^{1/12}}$$

$$\#4. a) 2\sqrt{7}$$

$$\sqrt{4}\sqrt{7}$$

$$\boxed{\sqrt{28}}$$

$$b) 8\sqrt{3}$$

$$\sqrt{64}\sqrt{3}$$

$$\boxed{\sqrt{192}}$$

$$c) \sqrt{320}$$

1 320  
2 160  
4 80  
5 64  
8 40  
10 32  
16 20

$$\sqrt{64}\sqrt{5}$$

$$\boxed{8\sqrt{5}}$$

$$d) \sqrt{507}$$

1 507  
3 169  
13 39

$$\sqrt{169}\sqrt{3}$$

$$\boxed{13\sqrt{3}}$$

$$\#5. a) \frac{2}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$$

$$\boxed{\frac{2\sqrt{5}}{5}}$$

$$b) \frac{5}{\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}}$$

$$\frac{5\sqrt{10}}{10}$$

$$\boxed{\frac{\sqrt{10}}{2}}$$

$$\#6. a) \sqrt[3]{38}$$

$$\sqrt[3]{27}$$

3

$$\sqrt[3]{64}$$

4

$$1^{\circ} : 3,3 \rightarrow (3,3)^3 = 35,937$$

$$2^{\circ} : 3,4 \rightarrow (3,4)^3 = 39,304$$

$$3^{\circ} : 3,35 \rightarrow (3,35)^3 = 37,595375$$

$$4^{\circ} : 3,36 \rightarrow (3,36)^3 = 37,933056$$

$$\sqrt[3]{38} \approx \boxed{3,36}$$

#6. b)  $\sqrt{95}$

$$\begin{array}{cc} \sqrt{81} & \sqrt{100} \\ 9 & 10 \end{array}$$

1<sup>e</sup> :  $9,8 \rightarrow (9,8)^2 = 96,04$

2<sup>e</sup> :  $9,75 \rightarrow (9,75)^2 = 95,0625$

$$\sqrt{95} \approx \boxed{9,75}$$

#7. a)  $\frac{15\sqrt{44}}{3\sqrt{11}}$

$$\frac{15}{3} \cdot \sqrt{\frac{44}{11}}$$

$$5\sqrt{4}$$

$$5(2)$$

$$\boxed{10}$$

b)  $(2-3\sqrt{3})(5+\sqrt{3})$

$$10 + 2\sqrt{3} - 15\sqrt{3} - 3(3)$$

$$10 - 13\sqrt{3} - 9$$

$$\boxed{1 - 13\sqrt{3}}$$

#8.

5	3375
5	675
5	135
3	27
3	9
3	3
	1

$$\boxed{5 \cdot 3} \cdot \boxed{5 \cdot 3} \cdot \boxed{5 \cdot 3} = 3375$$

cube parfait

$$\sqrt[3]{3375} = 5 \cdot 3 = 15$$

$$\begin{array}{r|l} 2 & 9702 \\ \hline 3 & 4851 \\ \hline 3 & 1617 \\ \hline 7 & 539 \\ \hline 7 & 77 \\ \hline 11 & 11 \\ \hline & 1 \end{array}$$

$$2 \cdot 3^2 \cdot 7^2 \cdot 11 = 9702$$

#10. 26, 52, 78, 104, 130, 156

12, 24, 36, 48, 60, 72, 84, 96, 108, 120, 132, 144, 156

PPCM est 156.

#11.  $\sqrt[3]{13} \approx 2,35\dots \rightarrow$  irrationnel

$\sqrt{18} \approx 4,24\dots \rightarrow$  irrationnel

$\sqrt{9} = 3$

$\sqrt[4]{27} \approx 2,27\dots \rightarrow$  irrationnel

$\sqrt[3]{-5} \approx -1,70\dots \rightarrow$  irrationnel

