1.- Simplifiqueu les expressions següents deixant-les sota el mateix radical

a) $\left(\sqrt[3]{2^2\cdot\sqrt{4}}\right)^5$ b) $\left(\sqrt[5]{\sqrt[3]{2}\cdot\sqrt{4}}\right)^5$ c) $\sqrt[6]{\sqrt[3]{\sqrt[4]{\sqrt[7]{\sqrt{9}}}}}$

2.- Calculeu el valor de racionalitzant

a) $\dfrac{4\sqrt{2}}{5\cdot\sqrt[6]{8}}$ b) $\dfrac{3+4\sqrt{3}}{\sqrt{6}+\sqrt{2}}$ c) $\dfrac{3+4\sqrt{3}}{\sqrt{6}+\sqrt{2}-\sqrt{5}}$

d) $2\sqrt{3}-\dfrac{1}{\sqrt{3}}+\dfrac{\sqrt{12}}{1-\sqrt{3}}+1+\dfrac{2}{2+\sqrt{3}}$ e) $\left(\dfrac{5}{\sqrt{2}-\sqrt{7}}-\dfrac{5}{\sqrt{2}+\sqrt{7}}\right)\cdot\dfrac{2}{\sqrt{7}}+3$

f) $\dfrac{\left(\sqrt{32}-3\sqrt{8}\right)^3}{\sqrt{2}}\dfrac{\sqrt{27}}{1-\sqrt{3}}-\dfrac{2^3\sqrt{54}}{\sqrt{2}}$ g) $\dfrac{\left(\sqrt{32}-3\sqrt{8}\right)^{-3}}{\sqrt{2}}\dfrac{\sqrt{27}}{\sqrt{3}-\sqrt{2}}+\dfrac{\sqrt{27}}{2^4\sqrt{2}}$

h) $\dfrac{\sqrt{3}-2}{3-2\sqrt{3}}\cdot\dfrac{\sqrt{3}+2}{\sqrt{3}-2}+\sqrt[3]{\dfrac{3}{2}}\cdot\left(\sqrt[3]{\dfrac{4}{9}}\right)^{-2}+\dfrac{3}{\sqrt{3}}$ i) $\left(\dfrac{\sqrt[5]{32}}{\sqrt{5}}(2\sqrt{125}-\sqrt{45})-\dfrac{4}{\sqrt{5}-2}\right)^2$

3.- Racionalitzeu i simplifiqueu

a) $\dfrac{x^2}{\sqrt{x^2+y^2}+y}$ b) $\dfrac{\sqrt{a+x}+\sqrt{a-x}}{\sqrt{a+x}-\sqrt{a-x}}$ c) $\dfrac{x\sqrt{y}+y\sqrt{x}}{\sqrt{x}-\sqrt{y}}$

4.- Resoldre les equacions:

a) $3^{x+1}=81$ b) $4^x=1024$

c) $5^x=10$ e) $7^{x+10}=25$

f) $2^x+2^{x+1}=24$ g) $2^{x-1}+2^x+2^{x+1}=7$

h) $3^{x-1}+3^x+3^{x+1}=117$ i) $2^{x-1}+2^{x-2}+2^{x-3}+2^{x-4}=960$

5.- Resoldre les equacions

a) $5^{2x}-6\cdot5^x+5=0$ b) $5^{2x}-30\cdot5^x+125=0$

c) $3^{2x+2}-28\cdot3^x+3=0$ d) $4^x-5\cdot2^x+4=0$

e) $9^x-2\cdot3^x-3=0$ f) $4^x-3\cdot2^{x+1}+8=0$