CORREZIONE ESERCITAZIONE B

64) $\sqrt{48}+\sqrt{8}-\sqrt{27}-\sqrt{18}=4\sqrt{3}+2\sqrt{2}-3\sqrt{3}-3\sqrt{2}=\boxed{\sqrt{3}-\sqrt{2}}$

65) $\dfrac{\sqrt[3]{x^2}\cdot\sqrt{x}}{x}=\dfrac{\sqrt[6]{x^4\cdot x^3}}{x}=\dfrac{\sqrt[6]{x^7}}{x}=\dfrac{\cancel{x}\sqrt[6]{x}}{\cancel{x}}=\boxed{\sqrt[6]{x}}$

66) $\dfrac{\sqrt[3]{x^4}}{\sqrt[4]{x^3}}:\sqrt[12]{x}=\dfrac{\sqrt[12]{x^{16}}}{\sqrt[12]{x^9}}:\sqrt[12]{x}=\sqrt[12]{\dfrac{x^{\cancel{16}\,\cancel{7}\,6}}{\cancel{x^9}}\cdot\dfrac{1}{\cancel{x}}}=\sqrt[12]{x^6}=\boxed{\sqrt{x}}$

67) $\sqrt[4]{\left(a+\sqrt{a^2-9}\right)\cdot\left(a-\sqrt{a^2-9}\right)}=\sqrt[4]{\cancel{a^2}\cancel{-a^2}+9}=\sqrt[4]{3^2}=\boxed{\sqrt{3}}$

68) $\sqrt{t^3-t^2}-\left(\sqrt{t-1}\right)^3=\sqrt{t^2(t-1)}-\sqrt{(t-1)^3}=t\sqrt{t-1}-(t-1)\sqrt{t-1}=\left(\cancel{t}\cancel{-t}+1\right)\sqrt{t-1}=\boxed{\sqrt{t-1}}$

69) $\dfrac{\left(2\sqrt{2}-2+\sqrt{3}\right)^2-\left(2\sqrt{2}+2-\sqrt{3}\right)^2+\sqrt{128}}{8}=$

$=\dfrac{8+4+3-8\sqrt{2}+4\sqrt{6}-4\sqrt{3}-\left(8+4+3+8\sqrt{2}-4\sqrt{6}-4\sqrt{3}\right)+8\sqrt{2}}{8}=$

$=\dfrac{\cancel{15}\cancel{-8\sqrt{2}}+4\sqrt{6}\cancel{-4\sqrt{3}}\cancel{-15}-8\sqrt{2}+4\sqrt{6}\cancel{+4\sqrt{3}}\cancel{+8\sqrt{2}}}{8}=\dfrac{8\sqrt{6}-8\sqrt{2}}{8}=\dfrac{\cancel{8}\left(\sqrt{6}-\sqrt{2}\right)}{\cancel{8}}=\boxed{\sqrt{6}-\sqrt{2}}$

70) $\dfrac{25+\left(2\sqrt{2}-1\right)^3}{22}=\dfrac{25+\left(2\sqrt{2}\right)^3+3\cdot\left(2\sqrt{2}\right)^2\cdot(-1)+3\cdot 2\sqrt{2}\cdot(-1)^2+(-1)^3}{22}=$

$=\dfrac{25+8\sqrt{2^3}-3\cdot 8+6\sqrt{2}-1}{22}=\dfrac{\cancel{25}+16\sqrt{2}\cancel{-24}+6\sqrt{2}\cancel{-1}}{22}=\dfrac{\cancel{22}\sqrt{2}}{\cancel{22}}=\boxed{\sqrt{2}}$

71) $\dfrac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}-\dfrac{15}{\left(\sqrt[4]{5}\cdot\sqrt[4]{3}\right)^2}=\dfrac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}\cdot\dfrac{\sqrt{5}+\sqrt{3}}{\sqrt{5}+\sqrt{3}}-\dfrac{15}{\left(\sqrt[4]{15}\right)^2}=\dfrac{\left(\sqrt{5}+\sqrt{3}\right)^2}{5-3}-\dfrac{15}{\sqrt{15}}=$

$=\dfrac{5+3+2\sqrt{15}}{2}-\dfrac{15}{\sqrt{15}}\cdot\dfrac{\sqrt{15}}{\sqrt{15}}=\dfrac{8+2\sqrt{15}}{2}-\dfrac{\cancel{15}\sqrt{15}}{\cancel{15}}=4\cancel{+\sqrt{15}}\cancel{-\sqrt{15}}=\boxed{4}$

72) $\left(\dfrac{1}{\sqrt{a+1}-\sqrt{a}}-\dfrac{a-1}{\sqrt{a}-1}\right)\left(\sqrt{a+1}+1\right)=\left(\dfrac{1}{\sqrt{a+1}-\sqrt{a}}\cdot\dfrac{\sqrt{a+1}+\sqrt{a}}{\sqrt{a+1}+\sqrt{a}}-\dfrac{a-1}{\sqrt{a}-1}\cdot\dfrac{\sqrt{a}+1}{\sqrt{a}+1}\right)\left(\sqrt{a+1}+1\right)=$

$=\left(\dfrac{\sqrt{a+1}+\sqrt{a}}{\cancel{a}+1\cancel{-a}}-\dfrac{\cancel{(a-1)}\left(\sqrt{a}+1\right)}{\cancel{a-1}}\right)\left(\sqrt{a+1}+1\right)=\left(\sqrt{a+1}\cancel{+\sqrt{a}}\cancel{-\sqrt{a}}-1\right)\left(\sqrt{a+1}+1\right)=a\cancel{+1}\cancel{-1}=\boxed{a}$

73) $\sqrt{2x-2\sqrt{x^2-x}-1}=\sqrt{2x-1-\sqrt{4x^2-4x}}=$

$=\sqrt{\dfrac{2x-1+\sqrt{(2x-1)^2-\left(4x^2-4x\right)}}{2}}-\sqrt{\dfrac{2x-1-\sqrt{(2x-1)^2-\left(4x^2-4x\right)}}{2}}=$

$=\sqrt{\dfrac{2x-1+\sqrt{\cancel{4x^2}\cancel{-4x}+1\cancel{-4x^2}\cancel{+4x}}}{2}}-\sqrt{\dfrac{2x-1-\sqrt{1}}{2}}=\sqrt{\dfrac{2x\cancel{-1}\cancel{+1}}{2}}-\sqrt{\dfrac{2x-1-1}{2}}=$

$=\sqrt{x}-\sqrt{\dfrac{2x-2}{2}}=\boxed{\sqrt{x}-\sqrt{x-1}}$