

CORREZIONE ESERCITAZIONE A

53) $\sqrt{27} + \sqrt{20} - \sqrt{12} - \sqrt{5} = 3\sqrt{3} + 2\sqrt{5} - 2\sqrt{3} - \sqrt{5} = \boxed{\sqrt{3} + \sqrt{5}}$

54) $\frac{\sqrt[4]{x^3} \cdot \sqrt{x}}{x} = \frac{\sqrt[4]{x^3 \cdot x^2}}{x} = \frac{\sqrt[4]{x^5}}{x} = \cancel{x} \frac{\sqrt[4]{x}}{\cancel{x}} = \boxed{\sqrt[4]{x}}$

55) $\sqrt[3]{\frac{(a^2-a)^2}{a^2}} : \sqrt{a-1} = \sqrt[3]{\frac{a^2(a-1)^2}{a^2}} \cdot \sqrt{\frac{1}{a-1}} = \sqrt[6]{(a-1)^4 \cdot \frac{1}{(a-1)^3}} = \boxed{\sqrt[6]{a-1}}$

56) $\frac{\sqrt{2} \cdot \sqrt[3]{5}}{\sqrt[6]{200}} = \frac{\sqrt[6]{2^3 \cdot 5^2}}{\sqrt[6]{200}} = \frac{\sqrt[6]{8 \cdot 25}}{\sqrt[6]{200}} = \sqrt[6]{\frac{200}{200}} = \sqrt[6]{1} = \boxed{1}$

57) $\sqrt{9a^3 - 9a^2} - (\sqrt{4a^3 - 4a^2} + \sqrt{a^3 - a^2}) = \sqrt{9a^2(a-1)} - \sqrt{4a^2(a-1)} - \sqrt{a^2(a-1)} =$
 $= 3a\sqrt{a-1} - 2a\sqrt{a-1} - a\sqrt{a-1} = \boxed{0}$

58) $\sqrt[4]{(x+\sqrt{2x-1})(x-\sqrt{2x-1})} = \sqrt[4]{x^2 - 2x + 1} = \sqrt[4]{(x-1)^2} = \boxed{\sqrt{x-1}}$

59) $(\sqrt{2}+1)^3 = (\sqrt{2})^3 + 3 \cdot (\sqrt{2})^2 \cdot 1 + 3 \cdot \sqrt{2} \cdot 1^2 + 1^3 =$
 $= \sqrt{2^3} + 3 \cdot 2 \cdot 1 + 3 \cdot \sqrt{2} \cdot 1 + 1 = 2\sqrt{2} + 6 + 3\sqrt{2} + 1 = \boxed{5\sqrt{2} + 7}$

60) $\frac{1}{96} \left(\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}} - \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}} \right)^2 = \frac{1}{96} \left[\frac{(\sqrt{3}+\sqrt{2})^2 - (\sqrt{3}-\sqrt{2})^2}{(\sqrt{3}-\sqrt{2})(\sqrt{3}+\sqrt{2})} \right]^2 = \frac{1}{96} \left[\frac{3+2+2\sqrt{6} - (3+2-2\sqrt{6})}{1} \right]^2 =$
 $= \frac{1}{96} (3\cancel{+2} + 2\sqrt{6} \cancel{-3-2} + 2\sqrt{6})^2 = \frac{1}{96} (4\sqrt{6})^2 = \frac{1}{96} \cdot 16 \cdot \cancel{6}^1 = \boxed{1}$

61) $\frac{x}{\sqrt[3]{x^2}} \cdot \frac{\sqrt[3]{x}}{\sqrt[3]{x}} = \cancel{x} \frac{\sqrt[3]{x}}{\cancel{x}} = \boxed{\sqrt[3]{x}}$ oppure: $\frac{x}{\sqrt[3]{x^2}} = \frac{\sqrt[3]{x^3}}{\sqrt[3]{x^2}} = \sqrt[3]{x}$

62) $\frac{\sqrt{2}}{\sqrt{3}+\sqrt{2}-1} = \frac{\sqrt{2}}{\sqrt{3}+(\sqrt{2}-1)} \cdot \frac{\sqrt{3}-(\sqrt{2}-1)}{\sqrt{3}-(\sqrt{2}-1)} =$
 $= \frac{\sqrt{2}(\sqrt{3}-\sqrt{2}+1)}{3-(2+1-2\sqrt{2})} = \frac{\sqrt{2}(\sqrt{3}-\sqrt{2}+1)}{\cancel{3-2-1} + 2\sqrt{2}} = \frac{\cancel{\sqrt{2}}(\sqrt{3}-\sqrt{2}+1)}{2\cancel{\sqrt{2}}} = \boxed{\frac{\sqrt{3}-\sqrt{2}+1}{2}}$

63) $\frac{\sqrt{19-6\sqrt{2}} + \sqrt{17-12\sqrt{2}}}{\sqrt{2}} = \frac{\sqrt{(3\sqrt{2}-1)^2} + \sqrt{(3-2\sqrt{2})^2}}{\sqrt{2}} =$
 $= \frac{3\sqrt{2}-1+3-2\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}+2}{\sqrt{2}} = \frac{\cancel{\sqrt{2}}(1+\sqrt{2})}{\cancel{\sqrt{2}}} = \boxed{1+\sqrt{2}}$