1. $(\sqrt{7}+\sqrt{6}).(\sqrt{7}-\sqrt{6})$

$$\frac{\sqrt{7}-\sqrt{6}+1}{\sqrt{7}+\sqrt{6}+1}$$

$$= \frac{(\sqrt{7}-\sqrt{6})+(\sqrt{7}+\sqrt{6}).(\sqrt{7}-\sqrt{6})}{\sqrt{7}+\sqrt{6}+1} \rightarrow \sqrt{7}-\sqrt{6} \text{ parantezine alırız.}$$

$$= \frac{(\sqrt{7}-\sqrt{6}).(1+\sqrt{7}+\sqrt{6})}{\sqrt{7}+\sqrt{6}+1}$$

$$= \sqrt{7}-\sqrt{6}$$

Cevap: D

2. $\sqrt{6}.\sqrt{9}.\sqrt{12}.\ \ldots\ .\sqrt{75} \rightarrow \frac{75-6}{3}+1 = 24$ terim

$$= \sqrt{3}.\sqrt{2}.\sqrt{3}.\sqrt{3}.\sqrt{3}.\sqrt{4}.\ \ldots\ .\sqrt{3}.\sqrt{25}$$

$$= \underbrace{\sqrt{3}.\sqrt{3}.\ \ldots\ .\sqrt{3}}_{\text{24 tane}}.\underbrace{\sqrt{2}.\sqrt{3}.\sqrt{4}.\ \ldots\ .\sqrt{25}}_{\text{A}}$$

$$= (\sqrt{3})^{24}.A$$

$$= 3^{12}.A$$

Cevap: D

3. 82 = a dersek

$$\sqrt{82.84+1} = \sqrt{a.(a+2)+1} = \sqrt{a^2+2a+1}$$

$$= \sqrt{(a+1)^2}$$

$$= a+1$$

$$= 82+1$$

$$= 83$$

Cevap: E

4.

$$\frac{\sqrt{7}-1}{1+\sqrt{2}} = M$$

$$x \qquad \frac{\sqrt{7}+1}{1-\sqrt{2}} = x$$

$$\frac{(\sqrt{7}-1)(\sqrt{7}+1)}{(1+\sqrt{2})(1-\sqrt{2})} = M.x$$

$$\frac{7-1}{1-2} = M.x$$

$$-6 = M.x$$

$$x = -\frac{6}{M}$$

Cevap: E

5. a = 343

b = 370

$$\sqrt{344.370-343.(371)} = \sqrt{(a+1).b-a.(b+1)}$$

$$= \sqrt{ab+b-ab-a}$$

$$= \sqrt{b-a}$$

$$= \sqrt{370-343}$$

$$= \sqrt{27}$$

$$= 3\sqrt{3}$$

Cevap: E

6. $a = 23 \Rightarrow \sqrt{1+22.\sqrt{1+(a+2).a}}$

$$= \sqrt{1+22.\sqrt{a^2+2a+1}}$$

$$= \sqrt{1+22.(a+1)}$$

$b = 22 \Rightarrow \sqrt{1+22.24}$

$$= \sqrt{1+b.(b+2)}$$

$$= \sqrt{b^2+2b+1}$$

$$= b+1$$

$$= 22+1$$

$$= 23$$

Cevap: D

7. $\sqrt[4]{\frac{a}{b}} = 3 \Rightarrow \frac{a}{b} = 3^4$

$\left(\frac{6}{a}\right)^2 = 4 \Rightarrow \frac{6}{a} = 2$

$\Rightarrow a = 3$

$\frac{3}{b} = 81 \Rightarrow b = \frac{1}{27}$

$a.b = 3.\frac{1}{27} = \frac{1}{9} = \frac{1}{3^2}$

Cevap: B

8. $\frac{\sqrt{2}+1}{\sqrt{6}+\sqrt{3}-2-\sqrt{2}} = \frac{\sqrt{2}+1}{\sqrt{3}(\sqrt{2}+1)-\sqrt{2}(\sqrt{2}+1)}$

$= \frac{\sqrt{2}+1}{(\sqrt{2}+1)(\sqrt{3}-\sqrt{2})}$

$= \frac{1}{\sqrt{3}-\sqrt{2}}$ ($\sqrt{3}+\sqrt{2}$)

$= \frac{\sqrt{3}+\sqrt{2}}{3-2} = \sqrt{3}+\sqrt{2}$

Cevap: B

9. $\frac{2}{\sqrt{6-2\sqrt{5}}} - \frac{2}{\sqrt{6+2\sqrt{5}}}$ (5.1) (5.1)

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

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

$= \frac{2\sqrt{5}+2-2\sqrt{5}+2}{4} = \frac{4}{4} = 1$

Cevap: B

10. $(\sqrt{3}-\sqrt{2})^3.(\sqrt{3}+\sqrt{2})^4$

$(\sqrt{3}-\sqrt{2})^3.(\sqrt{3}+\sqrt{2})^3.(\sqrt{3}+\sqrt{2})$

$((\sqrt{3}-\sqrt{2})(\sqrt{3}+\sqrt{2}))^3.(\sqrt{3}+\sqrt{2})$

$(3-2)^3.(\sqrt{3}+\sqrt{2})$

$1^3.(\sqrt{3}+\sqrt{2})$

$\sqrt{3}+\sqrt{2}$

Cevap: B

11. $\sqrt{\frac{\sqrt{80}+4}{\sqrt{6}-\sqrt{20}}} = \sqrt{\frac{4\sqrt{5}+4}{\sqrt{6}-2\sqrt{5}}}$

$= \sqrt{\frac{4(\sqrt{5}+1)}{\sqrt{5}-1}} = \sqrt{\frac{4.(\sqrt{5}+1)^2}{5-1}} = \sqrt{(\sqrt{5}+1)^2}$

($\sqrt{5}+1$)

$= \sqrt{5}+1$

Cevap: D

12. $(\sqrt{3}-\sqrt{2})^{22}.(5+2\sqrt{6})^{11} - \sqrt{6}$

$((\sqrt{3}-\sqrt{2})^2)^{11}.(5+2\sqrt{6})^{11} - \sqrt{6}$

$(3+2-2\sqrt{6})^{11}.(5+2\sqrt{6})^{11} - \sqrt{6}$

$(5-2\sqrt{6})^{11}(5+2\sqrt{6})^{11} - \sqrt{6}$

$((5-2\sqrt{6})(5+2\sqrt{6}))^{11} - \sqrt{6}$

$(25-24)^{11} - \sqrt{6}$

$1^{11} - \sqrt{6}$

$1 - \sqrt{6}$

Cevap: C

13. $\sqrt{3-\sqrt{1+2\sqrt{12}}}.\sqrt{3+\sqrt{1+2\sqrt{12}}}$

$\sqrt{(3-\sqrt{1+2\sqrt{12}})(3+\sqrt{1+2\sqrt{12}})}$

$\sqrt{9-(1+2\sqrt{12})}$

$\sqrt{8-2\sqrt{12}}$ (6.2)

$= \sqrt{6}-\sqrt{2}$

Cevap: C

14. $\sqrt{39^2-9^2-12^2}$

$= \sqrt{3^2(13^2-3^2-4^2)}$

$= \sqrt{3^2.(169-9-16)}$

$= \sqrt{3^2.144}$

$= \sqrt{3^2.12^2}$

$= 3.12$

$= 36$

Cevap: A