Calcule cu radicali

Profesor Tatiana Săbăreanu, Şcoala Temelia, judeţul Bacău

1.Cum este corect?

a) $\sqrt{3}+\sqrt{3}=\sqrt{6}\ sau\ \sqrt{3}+\sqrt{3}=2\sqrt{3}$ b) $\sqrt{(-5)^2}=5\ sau\ \sqrt{(-5)^2}=-5$

c) $9\sqrt{2}=\sqrt{81\cdot 2}\ sau\ 9\sqrt{2}=\sqrt{9\cdot 2}$ d) $3\sqrt{2}\cdot 3\sqrt{5}=3\sqrt{10}\ sau\ 3\sqrt{2}\cdot 3\sqrt{5}=9\sqrt{10}$

2. Sa se extraga radacina patrata din urmatoarele numere.

2209; 2304; 3481; 1156; 7396; 11025; 15129; 55696; 221841

3. Scoateti factorii de sub radical:

$\sqrt{12}$, $\sqrt{125}$, $\sqrt{121}$, $\sqrt{126}$, $\sqrt{512}$, $\sqrt{1024}$, $\sqrt{50}$, $\sqrt{500}$

4. Introduceti factorii sub radical:

$2\sqrt{5}$, $12\sqrt{5}$, $5\sqrt{5}$, $5\sqrt{2}$, $2\sqrt{3}$, $3\sqrt{5}$, $3\sqrt{2}$, $4\sqrt{15}$, $10\sqrt{7}$, $5\sqrt{55}$

5.Efectuaţi:

I. a) $9\sqrt{7}+4\sqrt{7}-2\sqrt{7}$; b) $-3\sqrt{2}+5\sqrt{3}+5\sqrt{2}-5\sqrt{3}-\sqrt{3}$; c) $\sqrt{5}\cdot 9\sqrt{2}$; d)$-11\sqrt{3}\cdot 2\sqrt{2}$

e) $35\sqrt{21}:5\sqrt{3}$; f)$15\sqrt{10}:3$; g) $-\frac{1}{5}\cdot\sqrt{\frac{2}{3}}\cdot 5\sqrt{\frac{2}{3}}$; h) $\sqrt{2}\cdot\left(3\sqrt{2}-\sqrt{5}\right)$; i) $\sqrt{72}+\sqrt{98}-2\sqrt{128}$

l) $64\sqrt{77}:2:2\sqrt{7}:4\sqrt{11}$; m) $-5\sqrt{3}\cdot\left(-2\sqrt{3}\right)\cdot\sqrt{3}$; n) $\left(\sqrt{3}\right)^2$; o) $\left(2\sqrt{5}\right)^3$;

p) $6\sqrt{a^2}+2\sqrt{a^2}-7\sqrt{a^2}$, a>0 ; q) $5\sqrt{9a^2}-\sqrt{a^2}$, a<0

II. a) $3\sqrt{7}+4\sqrt{7}$ b) $10\sqrt{5}-3\sqrt{5}$ c) $\sqrt{211}-\sqrt{211}$ d) $9\sqrt{11}-\sqrt{11}+\sqrt{5}+3\sqrt{5}$

e) $3\sqrt{2}+7-\sqrt{2}-7+6\sqrt{2}+1$ f) $\sqrt{3}\cdot\sqrt{5}$ g) $\sqrt{24}:\sqrt{8}$ h) $5\sqrt{7}\cdot 2\sqrt{2}$ i) $12\sqrt{10}:3\sqrt{5}$

j) $\sqrt{18}+\sqrt{50}$ k) $3\cdot\sqrt{20}-2\sqrt{5}$ l) $\sqrt{\frac{49}{100}}$ m)(-7)$\cdot 7\sqrt{2}\cdot(-2)$ n) $3\sqrt{7}\cdot\left(4\sqrt{2}-2\sqrt{7}\right)$

III.

6 .Calculaţi scotand factorii de sub radical:

a) $\left(\sqrt{480}-\sqrt{270}+\sqrt{20}+\sqrt{750}-\sqrt{1080}\right)\cdot\frac{\sqrt{8}}{2}=$.....

b) $2\sqrt{242}\cdot\left(\sqrt{512}-\sqrt{288}+\sqrt{72}\right)=$.....

c) $15+\sqrt{72}\cdot\left\{4\sqrt{2}-\left[8\sqrt{108}+2\sqrt{6}\cdot\left(3\sqrt{3}-\sqrt{12}\right)\right]\right\}=$.....

7. Calculaţi:

1) a) $3\sqrt{5}-7\sqrt{5}+2\sqrt{5}-\sqrt{5}=$ b) $2\sqrt{7}-5\sqrt{7}-3\sqrt{7}+4\sqrt{7}=$

c) $3\sqrt{10}-7\sqrt{10}+5\sqrt{10}-6\sqrt{10}=$ d) $4\sqrt{3}-7\sqrt{3}+\sqrt{3}-5\sqrt{3}=$

2) a) $2\sqrt{3}-4\sqrt{2}-5\sqrt{3}-3\sqrt{2}=$ b) $4\sqrt{5}-2\sqrt{7}-\sqrt{5}+\sqrt{7}=$

c) $3\sqrt{5}-2\sqrt{2}-4\sqrt{5}-5\sqrt{2}=$ d) $4\sqrt{7}-5\sqrt{3}+\sqrt{7}-\sqrt{3}=$

3) a) $3\sqrt{8}-2\sqrt{27}-\sqrt{32}+5\sqrt{12}=$ b) $3\sqrt{20}+3\sqrt{18}-2\sqrt{45}-2\sqrt{50}=$

c) $4\sqrt{32}-5\sqrt{27}+2\sqrt{12}-5\sqrt{8}=$ d) $2\sqrt{20}-3\sqrt{12}-5\sqrt{45}+\sqrt{27}=$

4) a) $2\sqrt{3}\cdot\left(\sqrt{3}-3\sqrt{2}\right)-\sqrt{2}\cdot\left(\sqrt{2}-\sqrt{3}\right)=$ b) $3\sqrt{10}\cdot\left(2\sqrt{2}-\sqrt{5}\right)-3\sqrt{5}\cdot\left(4-\sqrt{10}\right)=$

c) $2\sqrt{6}\cdot\left(\sqrt{3}+2\sqrt{2}\right)-5\sqrt{2}\cdot\left(\sqrt{6}-3\right)=$ d) $2\sqrt{5}\cdot\left(3\sqrt{2}-\sqrt{5}\right)-\sqrt{2}\cdot\left(2\sqrt{5}-3\sqrt{2}\right)=$

5) a) $\left(2\sqrt{3}-3\sqrt{2}\right)\cdot\left(\sqrt{3}+2\sqrt{2}\right)=$ b) $\left(\sqrt{5}-3\sqrt{2}\right)\cdot\left(2\sqrt{5}+\sqrt{2}\right)=$

c) $\left(2\sqrt{7}-\sqrt{3}\right)\cdot\left(\sqrt{7}+2\sqrt{3}\right)=$ d) $\left(4\sqrt{3}-2\sqrt{5}\right)\cdot\left(\sqrt{3}+3\sqrt{5}\right)=$

6) a) $2\sqrt{3}\cdot\left\{\sqrt{3}-\sqrt{2}\cdot\left[2\sqrt{6}-\sqrt{3}\cdot\left(2\sqrt{2}+\sqrt{3}\right)\right]\right\}=$ b) $3\sqrt{2}\cdot\left\{\sqrt{2}-\sqrt{3}\cdot\left[3\sqrt{6}-\sqrt{2}\cdot\left(3\sqrt{3}-2\sqrt{2}\right)\right]\right\}=$

c) $\sqrt{5}\cdot\left\{\sqrt{2}\cdot\left[\sqrt{6}-2\sqrt{3}\cdot\left(2\sqrt{18}-7\sqrt{2}\right)\right]-5\sqrt{3}\right\}=$ d) $\sqrt{7}\cdot\left\{\sqrt{3}\cdot\left[\sqrt{6}-2\sqrt{2}\cdot\left(3\sqrt{12}-8\sqrt{3}\right)\right]-14\sqrt{2}\right\}=$