$$A = \frac{1}{\sqrt{2}+1} + \frac{1}{\sqrt{3}+\sqrt{2}} + \frac{1}{2+\sqrt{3}} = \qquad \cancel{\sqrt{2}} - 1 + \cancel{\sqrt{3}} - \cancel{\sqrt{2}} + 2 - \cancel{\sqrt{3}} = 1$$

Παίρνω χωριστά κάθε κλάσμα

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

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

$$\frac{1}{2+\sqrt{3}} = \frac{1(2-\sqrt{3})}{(2+\sqrt{3})(2-\sqrt{3})} = \frac{1(2-\sqrt{3})}{2^2-\sqrt{3}^{\,2}} = \frac{2-\sqrt{3}}{4-3} = 2-\sqrt{3}$$

ασκ. 2 - Β'ομ / Σελ 75

(i) $(3+2\sqrt{7})^2 = 3^2 + 2\cdot 3\cdot 2\sqrt{7} + (2\sqrt{7})^2 = 9 + 12\sqrt{7} + 4\cdot\sqrt{7}^2 = 9 + 12\sqrt{7} + 28 = 37 + 12\sqrt{7}.$

$(3-2\sqrt{7})^2 = 3^2 - 2\cdot 3\cdot 2\sqrt{7} + (2\sqrt{7})^2 = 9 - 12\sqrt{7} + \cancel{4\sqrt{7}^2}$

$= 9 - 12\sqrt{7} + 28 = 37 - 12\sqrt{7}$

(ii) $\sqrt{37+12\sqrt{7}} - \sqrt{37-12\sqrt{7}} = \sqrt{(3+2\sqrt{7})^2} - \sqrt{(3-2\sqrt{7})^2} =$

$= |3+2\sqrt{7}| - |3-2\sqrt{7}| = 3+2\sqrt{7} - (-3+2\sqrt{7}) =$

$= 3 + \cancel{2\sqrt{7}} + 3 - \cancel{2\sqrt{7}} = 6$

6

Ιδιότητα 8.

$$\sqrt[\nu\cdot\mu]{a^{\nu\cdot\rho}} = \sqrt[\mu]{a^{\rho}}$$

Ασκήσεις / Σελ. 75

ασκ. 1, 3, 5 - Β΄ ΟΜ

Παραδείγματα

$$\sqrt[6]{2^{10}} = \sqrt[3]{2^{5}}$$

2

$6 = 2 \cdot 3$

$10 = 2 \cdot 5$

$$\sqrt[6]{5^{12}} = \sqrt[2]{5^{4}} = \sqrt{5^{4}} = 5^{2}$$

3

$$\sqrt{a^{\nu}} = a^{\frac{\nu}{2}}$$

$$\sqrt[2]{5} = \sqrt{5}$$

Να γίνει απλοποίηση

$$\sqrt[10]{2^{5}}$$

$$\sqrt[14]{a^{21}}$$

$$\sqrt[21]{a^{15}}$$