

Racines carrées - Rendre rationnel un dénominateur

Correction

1) Ecrire sans radical au dénominateur sous la forme la plus simple possible

$$\frac{3}{\sqrt{5}} = \frac{3 \times \sqrt{5}}{(\sqrt{5})^2} = \frac{3\sqrt{5}}{5}$$

$$\frac{5\sqrt{2}}{\sqrt{3}} = \frac{5\sqrt{2} \times \sqrt{3}}{(\sqrt{3})^2} = \frac{5\sqrt{6}}{3}$$

$$\frac{4}{3\sqrt{2}} = \frac{4 \times \sqrt{2}}{3 \times (\sqrt{2})^2} = \frac{2\sqrt{2}}{3}$$

$$\sqrt{\frac{4}{5}} = \frac{\sqrt{4} \times \sqrt{5}}{(\sqrt{5})^2} = \frac{2\sqrt{5}}{5}$$

$$\sqrt{\frac{7}{3}} = \frac{\sqrt{7} \times \sqrt{3}}{(\sqrt{3})^2} = \frac{\sqrt{21}}{3}$$

$$\frac{3\sqrt{2}}{\sqrt{8}} = \frac{3\sqrt{16}}{8} = \frac{12}{8} = \frac{3}{2}$$

$$\frac{4-\sqrt{6}}{\sqrt{6}} = \frac{\sqrt{6}(4-\sqrt{6})}{(\sqrt{6})^2} = \frac{4\sqrt{6}-6}{6} = \frac{2\sqrt{6}-3}{3}$$

$$\frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}} = \frac{\sqrt{3}(\sqrt{3}-\sqrt{2})}{(\sqrt{3})^2} = \frac{3-\sqrt{6}}{3}$$

2) Ecrire sans radical au dénominateur sous la forme la plus simple possible

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

$$B = \frac{\sqrt{7}+1}{\sqrt{7}-3}$$

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

$$B = \frac{(\sqrt{7}+1)(\sqrt{7}+3)}{(\sqrt{7}-3)(\sqrt{7}+3)}$$

$$A = \frac{\sqrt{3}-2}{3-4}$$

$$B = \frac{(\sqrt{7})^2 + \sqrt{7} + 3\sqrt{7} + 3}{(7-9)}$$

$$A = 2 - \sqrt{3}$$

$$B = \frac{10 + 4\sqrt{7}}{-2} = -5 - 2\sqrt{7}$$

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

$$D = \frac{5}{2\sqrt{2}-3}$$

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

$$D = \frac{5 \times (2\sqrt{2} + 3)}{(2\sqrt{2} - 3) \times (2\sqrt{2} + 3)}$$

$$C = \frac{3 + 2 + 2\sqrt{6}}{3 - 2}$$

$$D = \frac{10\sqrt{2} + 15}{8 - 9}$$

$$C = 5 + 2\sqrt{6}$$

$$D = -10\sqrt{2} - 15$$

3) Calculer et simplifier au maximum l'expression $E = \frac{2}{2-\sqrt{2}} + \frac{2}{2+\sqrt{2}}$

$$E = \frac{2 \times (2 + \sqrt{2})}{(2 - \sqrt{2}) \times (2 + \sqrt{2})} + \frac{2 \times (2 - \sqrt{2})}{(2 + \sqrt{2}) \times (2 - \sqrt{2})}$$

$$E = \frac{4 + 2\sqrt{2}}{4 - 2} + \frac{4 - 2\sqrt{2}}{4 - 2}$$

$$E = \frac{4 + 2\sqrt{2} + 4 - 2\sqrt{2}}{2} = \frac{8}{2} = 4$$