

Racionalizar las siguientes expresiones:

1.  $\frac{2}{\sqrt{5}}; \frac{3}{\sqrt{3}}$

2.  $\frac{1}{1+\sqrt{5}}; \frac{2}{5-\sqrt{5}}$

**Solución:**

1.  $\frac{2}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$

$$\frac{3}{\sqrt{3}} = \frac{3\sqrt{3}}{3} = \sqrt{3}$$

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

$$\frac{2}{5-\sqrt{5}} = \frac{2(5+\sqrt{5})}{(5-\sqrt{5})(5+\sqrt{5})} = \frac{2(5+\sqrt{5})}{5^2-(\sqrt{5})^2} = \frac{5+\sqrt{5}}{10}$$

Racionalizar las siguientes expresiones:

1.  $\frac{3}{\sqrt{7}}; \frac{5}{\sqrt{5}}$

2.  $\frac{1}{1+\sqrt{7}}; \frac{3}{7-\sqrt{7}}$

**Solución:**

1.  $\frac{3}{\sqrt{7}} = \frac{3\sqrt{7}}{7}$

$$\frac{5}{\sqrt{5}} = \frac{5\sqrt{5}}{5} = \sqrt{5}$$

2.  $\frac{1}{1+\sqrt{7}} = \frac{1-\sqrt{7}}{(1+\sqrt{7})(1-\sqrt{7})} = \frac{1-\sqrt{7}}{1-(\sqrt{7})^2} = \frac{1-\sqrt{7}}{1-7} = -\frac{1-\sqrt{7}}{6}$

$$\frac{3}{7-\sqrt{7}} = \frac{3(7+\sqrt{7})}{(7-\sqrt{7})(7+\sqrt{7})} = \frac{3(7+\sqrt{7})}{7^2-(\sqrt{7})^2} = \frac{3(7+\sqrt{7})}{42} = \frac{7+\sqrt{7}}{14}$$

Racionalizar las siguientes expresiones:

$$\frac{3}{1+\sqrt{7}}; \frac{3}{\sqrt[3]{3}}, \frac{\sqrt{2}}{\sqrt{3}-\sqrt{2}}$$

**Solución:**

$$\frac{3}{1+\sqrt{7}} = -\frac{1-\sqrt{7}}{2}; \frac{3}{\sqrt[3]{3}} = \sqrt[3]{9}, \frac{\sqrt{2}}{\sqrt{3}-\sqrt{2}} = \sqrt{6} + 2$$

Racionalizar las siguientes expresiones:

$$\frac{2}{1 + \sqrt{5}}; \quad \frac{2}{\sqrt[3]{3^2}}; \quad \frac{\sqrt{5}}{\sqrt{2} - \sqrt{3}}$$

**Solución:**

$$\frac{2}{1 + \sqrt{5}} = -\frac{1 - \sqrt{5}}{2}; \quad \frac{2}{\sqrt[3]{3^2}} = \frac{2\sqrt[3]{3}}{3}, \quad \frac{\sqrt{5}}{\sqrt{2} - \sqrt{3}} = -\sqrt{10} - \sqrt{15}$$

Racionalizar las siguientes expresiones:

$$\frac{7}{2 + \sqrt{11}}; \quad \frac{6}{\sqrt[5]{3^2}}; \quad \frac{\sqrt{7}}{\sqrt{7} - \sqrt{3}}$$

**Solución:**

$$\frac{7}{2 + \sqrt{11}} = -2 + \sqrt{11}; \quad \frac{6}{\sqrt[5]{3^2}} = 2\sqrt[5]{3^3}, \quad \frac{\sqrt{7}}{\sqrt{7} - \sqrt{3}} = \frac{7 + \sqrt{21}}{4}$$

Racionalizar las siguientes expresiones:

$$\frac{4}{1 + \sqrt{5}}; \quad \frac{3}{\sqrt[7]{3^2}}; \quad \frac{\sqrt{3}}{\sqrt{3} - \sqrt{7}}$$

**Solución:**

$$\frac{4}{1 + \sqrt{5}} = -1 + \sqrt{5}; \quad \frac{3}{\sqrt[7]{3^2}} = \sqrt[7]{3^5}, \quad \frac{\sqrt{3}}{\sqrt{3} - \sqrt{7}} = -\frac{3 + \sqrt{21}}{4}$$