

ΜΑΘΗΜΑ 42

- Λύσεις των ασκήσεων 1,2,3,4 σελ. 77

Άσκηση 1 σελ. 77

$$\alpha) \frac{1}{x^2} \cdot \frac{x}{y} = \frac{x}{x^2 y} = \frac{1}{xy}$$

$$\beta) \frac{9x}{4y} \cdot \frac{1}{3x} = \frac{9x}{12xy} = \frac{3}{4y}$$

$$\gamma) 12x^2 \cdot \frac{1}{9x} = \frac{12x^2}{9x} = \frac{4x}{3}$$

$$\delta) \frac{2\alpha^3}{3\beta^2} \cdot \frac{6\beta}{4\alpha^2} = \frac{12\alpha^3\beta}{12\alpha^2\beta^2} = \frac{\alpha}{\beta}$$

$$\epsilon) (-5\omega^2) \cdot \frac{3}{10\omega} = -\frac{15\omega^2}{10\omega} = -\frac{3\omega}{2}$$

$$\sigma\tau) \left(-\frac{3\alpha\beta}{2\beta}\right) \cdot \left(-\frac{4}{\alpha^2}\right) = \frac{12\alpha\beta}{2\alpha^2\beta} = \frac{6}{\alpha}$$

Άσκηση 2 σελ. 77

$$\alpha) 8x : \frac{6}{x} = 8x \cdot \frac{x}{6} = \frac{8x^2}{6} = \frac{4x^2}{3}$$

$$\beta) \frac{1}{y^2} : \left(-\frac{3}{y}\right) = \frac{1}{y^2} \cdot \left(-\frac{y}{3}\right) = -\frac{y}{3y^2} = -\frac{1}{3y}$$

$$\gamma) \left(-\frac{\alpha^2}{\beta^3}\right) : 3\alpha^2 = \left(-\frac{\alpha^2}{\beta^3}\right) \cdot \frac{1}{3\alpha^2} = -\frac{\alpha^2}{3\alpha^2\beta^3} = -\frac{1}{3\beta^3}$$

$$\delta) \left(-\frac{x^3}{2\omega}\right) : \left(-\frac{x^2}{4\omega^2}\right) = \left(-\frac{x^3}{2\omega}\right) \cdot \left(-\frac{4\omega^2}{x^2}\right) = \frac{4x^3\omega^2}{2\omega x^2} = 2x\omega$$

Άσκηση 3 σελ. 77

$$\alpha) \frac{2x+6}{x^2} \cdot \frac{4x}{x+3} = \frac{4x(2x+6)}{x^2(x+3)} = \frac{4x \cdot 2(x+3)}{x^2(x+3)} = \frac{8}{x}$$

$$\beta) \frac{y-5}{y+2} \cdot \frac{2+y}{5-y} = \frac{(y-5)(2+y)}{(y+2)(5-y)} = \frac{-(5-y)(2+y)}{(y+2)(5-y)} = -1$$

$$\gamma) \frac{x-\omega}{x^2\omega^3} \cdot \frac{x^3\omega^2}{x^2-\omega^2} = \frac{x^3\omega^2(x-\omega)}{x^2\omega^3(x^2-\omega^2)} = \frac{x^3\omega^2(x-\omega)}{x^2\omega^3(x-\omega)(x+\omega)} = \frac{x}{\omega(x+\omega)}$$

$$\delta) \frac{a^2-4}{a^2+a-6} \cdot \frac{a+3}{a^2+2a} = \frac{(a^2-4)(a+3)}{(a^2+a-6)(a^2+2a)} = \frac{(a+2)(a-2)(a+3)}{(a+3)(a-2)a(a+2)} = \frac{1}{a}$$

$$\epsilon) \frac{x^2+x}{x^2-4} \cdot \frac{x^2+5x+6}{x^2+3x} = \frac{(x^2+x)(x^2+5x+6)}{(x^2-4)(x^2+3x)} = \frac{x(x+1)(x+2)(x+3)}{(x-2)(x+2)x(x+3)} = \frac{x+1}{x-2}$$

$$\sigma\tau) \frac{4y^2-9}{4y^2-12y+9} \cdot \frac{y^2+3y}{2y^2+3y} = \frac{(4y^2-9)(y^2+3y)}{(4y^2-12y+9)(2y^2+3y)} =$$
$$= \frac{(2y-3)(2y+3)y(y+3)}{(2y-3)^2 y(2y+3)} = \frac{y+3}{2y-3}$$

Άσκηση 4 σελ. 77 (εκτός του στ)

$$\alpha) \frac{x+4}{5} : \frac{x+4}{15} = \frac{x+4}{5} \cdot \frac{15}{x+4} = \frac{15(x+4)}{5(x+4)} = 3$$

$$\beta) \frac{2y-1}{y+1} : \frac{1-2y}{1+y} = \frac{2y-1}{y+1} \cdot \frac{y+1}{1-2y} = \frac{(2y-1)(y+1)}{(y+1)(1-2y)} = \frac{-(1-2y)(y+1)}{(y+1)(1-2y)} = -1$$

$$\gamma) \left(-\frac{\omega+2}{\omega}\right) : (\omega+2) = \left(-\frac{\omega+2}{\omega}\right) \cdot \frac{1}{\omega+2} = -\frac{\omega+2}{\omega(\omega+2)} = -\frac{1}{\omega}$$

$$\delta) \frac{\alpha+1}{\beta^2} : \frac{(\alpha+1)^2}{\beta} = \frac{\alpha+1}{\beta^2} \cdot \frac{\beta}{(\alpha+1)^2} = \frac{\beta(\alpha+1)}{\beta^2(\alpha+1)^2} = \frac{1}{\beta(\alpha+1)}$$

$$\epsilon) \frac{x+y}{x^2-xy} : \frac{x^2+xy}{x-y} = \frac{x+y}{x^2-xy} \cdot \frac{x-y}{x^2+xy} = \frac{(x+y)(x-y)}{(x^2-xy)(x^2+xy)} = \frac{(x+y)(x-y)}{x(x-y)x(x+y)} = \frac{1}{x^2}$$