



## Γ' Γυμνασίου / Άλγεβρα / Άλγεβρικές Παραστάσεις / Μονώνυμα-Πολυώνυμα

### Λυμένες Ασκήσεις (Σχολικού Βιβλίου)

1. Να κάνετε τις πράξεις:

$$\alpha) -7x^2y + 4x^2y \quad \beta) 4ax^2 - 6ax^2 + ax^2 \quad \gamma) 6x^3 - \frac{9}{2}x^3$$

$$\delta) 0,25\alpha\beta - 0,35\alpha\beta + 0,5\alpha\beta \quad \epsilon) \frac{2}{5}xy^2\omega^4 - 1,2xy^2\omega^4 \quad \sigma\tau) -3\sqrt{2}x^2 + 4\sqrt{2}x^2 - \sqrt{2}x^2$$

#### Λύση

Επειδή τα μονώνυμα είναι όμοια αρκεί να χρησιμοποιήσουμε την επιμεριστική ιδιότητα.

$$\alpha) -7x^2y + 4x^2y = (-7 + 4)x^2y = -3x^2y$$

$$\beta) 4ax^2 - 6ax^2 + ax^2 = (4 - 6 + 1)ax^2 = -ax^2$$

$$\gamma) 6x^3 - \frac{9}{2}x^3 = (6 - \frac{9}{2})x^3 = (\frac{12}{2} - \frac{9}{2})x^3 = \frac{3}{2}x^3$$

$$\delta) 0,25\alpha\beta - 0,35\alpha\beta + 0,5\alpha\beta = (0,25 - 0,35 + 0,5)\alpha\beta = 0,4\alpha\beta$$

$$\epsilon) \frac{2}{5}xy^2\omega^4 - 1,2xy^2\omega^4 = (\frac{2}{5} - 1,2)xy^2\omega^4 = (0,4 - 1,2)xy^2\omega^4 = -0,8xy^2\omega^4$$

$$\sigma\tau) -3\sqrt{2}x^2 + 4\sqrt{2}x^2 - \sqrt{2}x^2 = (-3\sqrt{2} + 4\sqrt{2} - \sqrt{2})x^2 = 0x^2 = 0$$

2. Να υπολογίσετε τα γινόμενα:

$$\alpha) -3x \cdot 5x^2 \quad \beta) 6x^2 \cdot \frac{3}{4}x^3 \quad \gamma) 2xy^3 \cdot (-3x^2y) \quad \delta) -3x^2y \cdot (-2xy^4\omega)$$

$$\epsilon) -\frac{1}{3}\alpha\beta^3 \cdot 4\alpha\beta^3 \quad \sigma\tau) \frac{4}{3}x^3a^2 \cdot (-\frac{1}{4}xa^3) \quad \zeta) (-\frac{2}{5}xy^3) \cdot (-3x^2\omega) \cdot (-\frac{5}{6}y\omega^3)$$



## Λύση

$$\alpha) -3x \cdot 5x^2 = -15x^3$$

$$\beta) 6x^2 \cdot \frac{3}{4}x^3 = \frac{18}{4}x^5 = \frac{9}{2}x^5$$

$$\gamma) 2xy^3 \cdot (-3x^2y) = -6x^3y^4$$

$$\delta) -3x^2y \cdot (-2xy^4\omega) = 6x^3y^5\omega$$

$$\epsilon) -\frac{1}{3}\alpha\beta^3 \cdot 4\alpha\beta^3 = -\frac{4}{3}\alpha^2\beta^6$$

$$\sigma\tau) \frac{4}{3}x^3a^2 \cdot \left(-\frac{1}{4}xa^3\right) = -\frac{4}{4 \cdot 3}x^4a^5 = -\frac{1}{3}x^4a^5$$

$$\zeta) \left(-\frac{2}{5}xy^3\right) \cdot (-3x^2\omega) \cdot \left(-\frac{5}{6}y\omega^3\right) = -\frac{2}{5} \cdot (-3) \cdot \left(-\frac{5}{6}\right) x^3y^4\omega^4 = -\frac{30}{30}x^3y^4\omega^4 = -x^3y^4\omega^4$$

3. Να υπολογίσετε τα πηλίκα :

$$\alpha) 12\alpha^3 : (-3\alpha) \quad \beta) 8x^2y : (2xy^2) \quad \gamma) \left(-\frac{1}{3}\alpha^3\beta^5\right) : \left(\frac{6}{5}\alpha^2\beta^2\right)$$

$$\delta) (0,84x^2\omega^5) : (-0,12x\omega^3) \quad \epsilon) (-x^3\alpha^4\omega) : \left(-\frac{1}{4}x^2a\right) \quad \sigma\tau) (0,5a^3\beta^7) : \left(-\frac{7}{10}a^2\beta^2\right)$$

## Λύση

$$\alpha) 12\alpha^3 : (-3\alpha) = 12\alpha^3 \cdot \left(-\frac{1}{3\alpha}\right) = -\frac{12\alpha^3}{3\alpha} = -4\alpha^2$$

$$\beta) 8x^2y : (2xy^2) = 8x^2y \cdot \left(\frac{1}{2xy^2}\right) = \frac{4x}{y}$$

$$\gamma) \left(-\frac{1}{3}\alpha^3\beta^5\right) : \left(\frac{6}{5}\alpha^2\beta^2\right) = \left(-\frac{1}{3}\alpha^3\beta^5\right) \cdot \left(\frac{5}{6\alpha^2\beta^2}\right) = \left(-\frac{\alpha^3\beta^5}{3}\right) \left(\frac{5}{6\alpha^2\beta^2}\right) = -\frac{5\alpha^3\beta^5}{18\alpha^2\beta^2} = -\frac{5}{18}a\beta^3$$

$$\delta) (0,84x^2\omega^5) : (-0,12x\omega^3) = (0,84x^2\omega^5) \cdot \left(-\frac{1}{0,12x\omega^3}\right) = -\frac{0,84x^2\omega^5}{0,12x\omega^3} = -7x\omega^2$$

$$\epsilon) (-x^3\alpha^4\omega) : \left(-\frac{1}{4}x^2a\right) = (-x^3\alpha^4\omega) \cdot \left(-\frac{4}{x^2a}\right) = \frac{4x^3\alpha^4\omega}{x^2a} = 4x\alpha^3\omega$$

$$\sigma\tau) (0,5a^3\beta^7) : \left(-\frac{7}{10}a^2\beta^2\right) = (0,5a^3\beta^7) \cdot \left(-\frac{10}{7a^2\beta^2}\right) = -\frac{5a^3\beta^7}{7a^2\beta^2} = -\frac{5}{7}a\beta^5$$