



B' Γυμνασίου / Εξισώσεις 1^{ου} βαθμού

Λυμένες Ασκήσεις

1) Να λυθούν οι εξισώσεις

α) $-3\chi + 12 = 4\chi - 2$

β) $3(\chi - 2) + 9 = 4(\chi + 1) - 2$

γ) $-3(\chi + 2) + 5(\chi - 1) + 12 = 4(\chi + 1) - 2$

δ) $-y + 8 = 4y - 2$

ε) $-10(z + 1) - 7 = -9z - 2$

στ) $-y + 8 = -y - 2$

Λύση

α) $-3\chi + 12 = 4\chi - 2$

$-4\chi - 3\chi = -12 - 2$

$-7\chi = -14$

$\frac{-7\chi}{-7} = \frac{-14}{-7}$

$\chi = 2$

β) $3(\chi - 2) + 9 = 4(\chi + 1) - 2$

$3\chi - 6 + 9 = 4\chi + 4 - 2$

$3\chi - 4\chi = -3 + 2$

$-\chi = -1$

$\frac{-\chi}{-1} = \frac{-1}{-1}$

$\chi = 1$



$$\gamma) -3(\chi + 2) + 5(\chi - 1) + 12 = 4(\chi + 1) - 2$$

$$-3\chi - 6 + 5\chi - 5 + 12 = 4\chi + 4 - 2$$

$$2\chi - 4\chi = -1 + 2$$

$$-2\chi = 1$$

$$\frac{-2\chi}{-2} = \frac{1}{-2}$$

$$\chi = -\frac{1}{2}$$

$$\delta) -y + 8 = 4y - 2$$

$$-y - 4y = -8 - 2$$

$$-5y = -10$$

$$\frac{-5y}{-5} = \frac{-10}{-5}$$

$$y = 2$$

$$\epsilon) -10(z + 1) - 7 = -9z - 2$$

$$-10z - 10 - 7 = -9z - 2$$

$$-10z + 9z = 17 - 2$$

$$-z = 15$$

$$\frac{-z}{-1} = \frac{15}{-1}$$

$$z = -15$$

$$\sigma\tau) -y + 8 = -y - 2$$

$$-y + y = -8 - 2$$

$$0y = -10 \text{ Αδύνατη}$$



2) Να λυθούν οι εξισώσεις

$$\alpha) \frac{-3\chi+2}{3} = \frac{\chi-2}{4}$$

$$\beta) \frac{3(\chi-2)}{2} + 8 = \frac{4(\chi+1)}{3} - 12$$

$$\gamma) -\frac{\chi}{2} + \frac{\chi+3}{3} = \chi + 1$$

$$\delta) \frac{-y+8}{5} = \frac{-2y+16}{10}$$

Λύση

$$\alpha) \frac{-3\chi+2}{3} = \frac{\chi-2}{4} \quad \text{Ε.Κ.Π (3,4)=12}$$

$$12 \cdot \frac{-3\chi+2}{3} = 12 \cdot \frac{\chi-2}{4}$$

$$4(-3\chi + 2) = 3(\chi - 2)$$

$$-12\chi + 8 = 3\chi - 6$$

$$-12\chi - 3\chi = -8 - 6$$

$$-15\chi = -14$$

$$\frac{-15\chi}{-15} = \frac{-14}{-15}$$

$$\chi = \frac{14}{15}$$

$$\beta) \frac{3(\chi-2)}{2} + 8 = \frac{4(\chi+1)}{3} - 12 \quad \text{Ε.Κ.Π (2,3)=6}$$

$$6 \cdot \frac{3(\chi-2)}{2} + 6 \cdot 8 = 6 \cdot \frac{4(\chi+1)}{3} - 6 \cdot 12$$

$$9(\chi - 2) + 48 = 8(\chi + 1) - 72$$

$$9\chi - 18 + 48 = 8\chi + 8 - 72$$

$$9\chi - 8\chi = 8 - 72 - 30$$

$$\chi = -94$$



$$\gamma) -\frac{x}{2} + \frac{x+3}{3} = x + 1 \quad \text{Ε.Κ.Π (2,3)=6}$$

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

$$-3x + 2(x + 3) = 6x + 6$$

$$-3x + 2x + 6 = 6x + 6$$

$$-3x + 2x - 6x = 6 - 6$$

$$-7x = 0$$

$$x = 0$$

$$\delta) \frac{-y+8}{5} = \frac{-2y+16}{10} \quad \text{Ε.Κ.Π (5,10)=10}$$

$$10 \cdot \frac{-y+8}{5} = 10 \cdot \frac{-2y+16}{10}$$

$$2(-y + 8) = -2y + 16$$

$$-2y + 16 = -2y + 16$$

$$0y = 0 \quad \text{Ταυτότητα}$$



3) Για ποια τιμή του x είναι $A=2B$;

α) $A = 3x + 2$ και $B = 2x - 3$

β) $A = -x + 1$ και $B = -3x + 2$

Λύση

α) Ισχύει $A = 2B$

$$3x + 2 = 2(2x - 3)$$

$$3x + 2 = 4x - 6$$

$$3x - 4x = -2 - 6$$

$$-x = -8$$

$$\frac{-x}{-1} = \frac{-8}{-1}$$

$$x = 8$$

β) Ισχύει $A = 2B$

$$-x + 1 = 2(-3x + 2)$$

$$-x + 1 = -6x + 4$$

$$-x + 6x = -1 + 4$$

$$5x = 3$$

$$\frac{5x}{5} = \frac{3}{5}$$

$$x = \frac{3}{5}$$