



משוואות - פתרונות

1. $2x + 13 = 19$
 $2x = 6$
 $x = 3$

2. $5x + 6 = 8x + 18$
 $-12 = 3x$
 $x = -4$

3. $\frac{x+6}{2} = \frac{2x+8}{3}$
 $3(x+6) = 2(2x+8)$
 $3x+18 = 4x+16$
 $x = 2$

4. $\frac{x+4}{5} = \frac{3-x}{2} + 7$
 $\frac{x+4}{5} = \frac{3-x}{2} + \frac{14}{2}$
 $\frac{x+4}{5} = \frac{3-x+14}{2}$
 $\frac{x+4}{5} = \frac{17-x}{2}$
 $2(x+4) = 5(17-x)$
 $2x+8 = 85-5x$
 $7x = 77$
 $x = 11$

5. $\frac{3+3x}{6} = \frac{5}{8}$
 $\frac{3(1+x)}{6} = \frac{5}{8}$
 $\frac{1+x}{2} = \frac{5}{8}$
 $8(1+x) = 10$
 $8+8x = 10$
 $8x = 2 \Rightarrow x = \frac{1}{4}$

$$\begin{aligned}
 6. \quad \frac{1}{x} &= \frac{1}{2} + \frac{1}{3} \\
 \frac{1}{x} &= \frac{3}{6} + \frac{2}{6} \\
 \frac{1}{x} &= \frac{5}{6} \\
 6 &= 5x \\
 x &= \frac{6}{5} = 1\frac{1}{5}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad \frac{1}{x} &= 5 \\
 5x &= 1 \\
 x &= \frac{1}{5}
 \end{aligned}$$

$$8. \quad \begin{cases} x + y = 40 \\ x - y = 20 \end{cases}$$

$$\begin{array}{r}
 x + y = 40 \\
 x - y = 20 \\
 \hline
 2x = 60
 \end{array}$$

$$\begin{aligned}
 x &= 30 \\
 30 + y &= 40 \\
 y &= 10
 \end{aligned}$$

9.
$$\begin{cases} 2x - 3y = 15 \\ x + y = 20 \end{cases}$$

$$x + y = 20 \xrightarrow{\times 2} 2x + 2y = 40$$

$$2x + 2y = 40$$

$$\underline{2x - 3y = 15}$$

$$5y = 25$$

$$y = 5$$

$$x + 5 = 20$$

$$x = 15$$

10.
$$\begin{cases} \frac{x}{2} + \frac{y}{2} = 6 \\ \frac{x}{3} - \frac{y}{3} = \frac{12}{6} \end{cases}$$

$$\frac{x}{2} + \frac{y}{2} = 6 \xrightarrow{\times 2} x + y = 12$$

$$\frac{x}{3} - \frac{y}{3} = 2 \xrightarrow{\times 3} x - y = 6$$

$$x + y = 12$$

$$\underline{x - y = 6}$$

$$2x = 18$$

$$x = 9$$

$$9 - y = 6$$

$$y = 3$$

11. $2a(a+1)(a-3) = 0$

$$a_1 = 0$$

$$a_2 = -1$$

$$a_3 = 3$$