

反射テスト 2次方程式 因数分解 02

1. 次の方程式を解け。(S級 50秒, A級 1分40秒, B級 2分30秒, C級 3分30秒)

(1) $x^2 - 6x + 9 = 0$

(2) $x^2 - x - 20 = 0$

(3) $x^2 + 6x + 8 = 0$

(4) $x^2 - 10x + 16 = 0$

(5) $x^2 + 80x - 900 = 0$

(6) $5x^2 - 30x - 200 = 0$

(7) $3x^2 + 7x - 6 = 0$

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

2. 次の方程式を解け。(S級1分, A級1分40秒, B級2分30秒, C級3分30秒)

(1) $x^2 + 4x + 4 = 0$

(2) $x^2 + x - 30 = 0$

(3) $x^2 + 11x + 18 = 0$

(4) $x^2 - 13x + 36 = 0$

(5) $x^2 + 50x - 600 = 0$

(6) $6x^2 - 42x + 72 = 0$

(7) $5x^2 + 13x - 6 = 0$

(8) $(x - 5)^2 - 2(x - 5) = -1$

反射テスト 2次方程式 因数分解 02 解答解説

1. 次の方程式を解け。(S級50秒, A級1分40秒, B級2分30秒, C級3分30秒)

(1) $x^2 - 6x + 9 = 0$

$$\begin{aligned}(x-3)^2 &= 0 \\ x-3 &= 0 \\ x &= 3\end{aligned}$$

(2) $x^2 - x - 20 = 0$

$$\begin{aligned}(x+4)(x-5) &= 0 \\ x+4=0 \text{ 又は } x-5=0 \\ x &= -4 \text{ 又は } x=5\end{aligned}$$

(3) $x^2 + 6x + 8 = 0$

$$\begin{aligned}(x+4)(x+2) &= 0 \\ x+4=0 \text{ 又は } x+2=0 \\ x &= -4 \text{ 又は } x=-2\end{aligned}$$

(4) $x^2 - 10x + 16 = 0$

$$\begin{aligned}(x-2)(x-8) &= 0 \\ x-2=0 \text{ 又は } x-8=0 \\ x &= 2 \text{ 又は } x=8\end{aligned}$$

(5) $x^2 + 80x - 900 = 0$

$$\begin{aligned}(x+90)(x-10) &= 0 \\ x+90=0 \text{ 又は } x-10=0 \\ x &= -90 \text{ 又は } x=10\end{aligned}$$

(6) $5x^2 - 30x - 200 = 0$

$$\begin{aligned}x^2 - 6x - 40 &= 0 && \leftarrow \text{両辺} \div 5 \\ (x+4)(x-10) &= 0 \\ x+4=0 \text{ 又は } x-10=0 \\ x &= -4 \text{ 又は } x=10\end{aligned}$$

(7) $3x^2 + 7x - 6 = 0$

$$\begin{aligned}(x+3)(3x-2) &= 0 \\ x+3=0 \text{ 又は } 3x-2=0 \\ x &= -3 \text{ 又は } x = \frac{2}{3}\end{aligned}$$

☆たすき掛けの因数分解

$$\begin{array}{r} 1 \quad \times \quad +3 \quad \longrightarrow \quad 9 \\ 3 \quad \times \quad -2 \quad \longrightarrow \quad -2 \\ \hline 7 \end{array}$$

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

$$\begin{aligned}A &= x-3 \text{ とおくと,} \\ A^2 + 2A + 1 &= 0 \\ (A+1)^2 &= 0 \\ \{(x-3)+1\}^2 &= 0 \\ (x-2)^2 &= 0 \\ x-2 &= 0 \\ x &= 2\end{aligned}$$

☆展開ゴリゴリでもよい.

2. 次の方程式を解け。(S級1分, A級1分40秒, B級2分30秒, C級3分30秒)

(1) $x^2 + 4x + 4 = 0$

$$\begin{aligned}(x+2)^2 &= 0 \\ x+2 &= 0 \\ x &= -2\end{aligned}$$

(2) $x^2 + x - 30 = 0$

$$\begin{aligned}(x+6)(x-5) &= 0 \\ x+6=0 \text{ 又は } x-5=0 \\ x &= -6 \text{ 又は } x=5\end{aligned}$$

(3) $x^2 + 11x + 18 = 0$

$$\begin{aligned}(x+9)(x+2) &= 0 \\ x+9=0 \text{ 又は } x+2=0 \\ x &= -9 \text{ 又は } x=-2\end{aligned}$$

(4) $x^2 - 13x + 36 = 0$

$$\begin{aligned}(x-4)(x-9) &= 0 \\ x-4=0 \text{ 又は } x-9=0 \\ x &= 4 \text{ 又は } x=9\end{aligned}$$

(5) $x^2 + 50x - 600 = 0$

$$\begin{aligned}(x+60)(x-10) &= 0 \\ x+60=0 \text{ 又は } x-10=0 \\ x &= -60 \text{ 又は } x=10\end{aligned}$$

(6) $6x^2 - 42x + 72 = 0$

$$\begin{aligned}x^2 - 7x + 12 &= 0 && \leftarrow \text{両辺} \div 6 \\ (x-3)(x-4) &= 0 \\ x-3=0 \text{ 又は } x-4=0 \\ x &= 3 \text{ 又は } x=4\end{aligned}$$

(7) $5x^2 + 13x - 6 = 0$

$$\begin{aligned}(x+3)(5x-2) &= 0 \\ x+3=0 \text{ 又は } 5x-2=0 \\ x &= -3 \text{ 又は } x = \frac{2}{5}\end{aligned}$$

☆たすき掛けの因数分解

$$\begin{array}{r} 1 \quad \times \quad +3 \quad \rightarrow \quad 15 \\ 5 \quad \times \quad -2 \quad \rightarrow \quad -2 \\ \hline 13 \end{array}$$

(8) $(x-5)^2 - 2(x-5) = -1$

$$\begin{aligned}A = x-5 \text{ とおくと,} \\ A^2 - 2A + 1 &= 0 \\ (A-1)^2 &= 0 \\ \{(x-5)-1\}^2 &= 0 \\ (x-6)^2 &= 0 \\ x-6 &= 0 \\ x &= 6\end{aligned}$$

☆展開ゴリゴリでもよい.