

愛知県公立入試問題過去問（3年）

教科書 2章

「平方根（H7~R4）」
〔計算〕（　）年（　）組 氏名（　）

$$[7A] \sqrt{72} - \frac{4}{\sqrt{2}} - \sqrt{18}$$

$$[10B] \sqrt{48} - \sqrt{75} + \sqrt{12}$$

$$[11A] \sqrt{5} \times \sqrt{15} - \frac{12}{\sqrt{3}}$$

$$[11B] (\sqrt{6} - \sqrt{2})^2 + \sqrt{3}(4 + \sqrt{27})$$

$$[12B] \sqrt{5}(2\sqrt{3} - 3) - \sqrt{45}(\sqrt{3} - 1)$$

$$[13A] \left(\sqrt{2} + \frac{1}{\sqrt{2}} \right) \times \sqrt{8}$$

$$[13B] (\sqrt{2} + \sqrt{3})\sqrt{12} - \sqrt{6}(2 - \sqrt{6})$$

$$[14A] \sqrt{3}(\sqrt{12} + \sqrt{27})$$

$$[14B] (2 + \sqrt{3})\times\sqrt{2} - \sqrt{8}$$

$$[15A] (\sqrt{8} + \sqrt{18}) \div \sqrt{2}$$

$$[15B] \sqrt{32} \div \sqrt{12} \div \sqrt{6}$$

$$[16A] \sqrt{24} \div \sqrt{18} \div \sqrt{3}$$

$$[16B] (\sqrt{50} - \sqrt{18}) \div \sqrt{2}$$

$$[17A] (2\sqrt{5} - 1)^2 - (6 - 4\sqrt{5})$$

$$[17B] (\sqrt{80} - \sqrt{45}) \times \sqrt{20} \quad [18B] \sqrt{2}(\sqrt{50} - \sqrt{3}) - \sqrt{3}(\sqrt{48} - \sqrt{2})$$

$$[19A] \sqrt{8} - \frac{2\sqrt{6}}{\sqrt{12}} \quad [19B] \sqrt{64} \div \sqrt{12} \times \sqrt{27}$$

$$[20A] \sqrt{27} - \frac{6}{\sqrt{3}} \quad [20B] (\sqrt{5} - 2)^2 + \sqrt{5}(\sqrt{20} + 4)$$

$$[21B] (\sqrt{3} - 1)(\sqrt{3} + 3) + (1 - \sqrt{3})^2 \quad [22A] \sqrt{45} - \sqrt{10} \times \sqrt{2}$$

$$[22B] \quad (\sqrt{24} - \sqrt{6}) \times \frac{2}{\sqrt{8}} \qquad [23A] \quad (\sqrt{6} + 4)(\sqrt{6} - 1) - \sqrt{54}$$

$$[23B] \quad \sqrt{32} - \sqrt{72} + \sqrt{18} \qquad [24A] \quad \frac{\sqrt{24}}{3} + \frac{\sqrt{2}}{\sqrt{3}}$$

$$[24B] \quad (\sqrt{5} - \sqrt{3})(\sqrt{15} + \sqrt{4}) \qquad [25A] \quad \sqrt{6}(\sqrt{18} - \sqrt{2}) - \sqrt{27}$$

$$[25B] \quad \sqrt{27} \times \sqrt{32} \div \sqrt{24} \qquad [26A] \quad \frac{20}{\sqrt{5}} - \sqrt{45}$$

$$[26B] \quad (\sqrt{3} + \sqrt{2})^2 - \sqrt{24}$$

$$[27A] \quad \sqrt{3} \times (\sqrt{27} - \sqrt{12})$$

$$[27B] \quad (2\sqrt{3} + \sqrt{5}) \left(\frac{6}{\sqrt{3}} - \sqrt{5} \right)$$

$$[28A] \quad (\sqrt{8} + \sqrt{2})(\sqrt{32} - \sqrt{8})$$

$$[29A] \quad (\sqrt{12} + \sqrt{18})(\sqrt{3} - \sqrt{2})$$

$$[29B] \quad \sqrt{10} \times \sqrt{8} - \sqrt{45}$$

$$[30A] \quad \frac{3}{\sqrt{5}} + \frac{\sqrt{20}}{5}$$

$$[30B] \quad (\sqrt{3} + 1)^2 - 2(\sqrt{3} + 1)$$

$$[31A] \quad \sqrt{3} (\sqrt{5} - 3) + \sqrt{27} \quad [31B] \quad \sqrt{32} - \sqrt{8} - \sqrt{2}$$

$$[R2A] \quad (\sqrt{10} + \sqrt{5})(\sqrt{6} - \sqrt{3}) \quad [R2B] \quad (\sqrt{5} - 1)^2 + \sqrt{20}$$

$$[R3A] \quad \frac{3}{\sqrt{2}} - \frac{2}{\sqrt{8}} \quad [R3B] \quad \sqrt{48} - 3\sqrt{6} \div \sqrt{2}$$

$$[R4A] \quad (\sqrt{5} - \sqrt{3})(\sqrt{20} + \sqrt{12}) \quad [R4B] \quad (\sqrt{5} + \sqrt{2})^2 - (\sqrt{5} - \sqrt{2})^2$$

[式の値]

【5B】 $x = \sqrt{3} + 2$ 、 $y = \sqrt{3} - 2$ のとき、 $x^2 + y^2 - 2xy$ の解を求めなさい。

【6B】 $x = \sqrt{3} - 1$ 、 $y = \sqrt{2}$ のとき、 $x^2 + y^2 + 2x$ の解を求めなさい。

【12A】 $x = 3 + \sqrt{2}$ のとき、 $x^2 - 6x$ の解を求めなさい。

【18A】 $x = 2\sqrt{3} + 1$ のとき、 $x^2 - 2x + 1$ の解を求めなさい。

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$$[7A] \sqrt{72} - \frac{4}{\sqrt{2}} - \sqrt{18}$$

$$\begin{aligned} & \text{解説: } \sqrt{72} = \sqrt{2 \times 36} = 6\sqrt{2} \\ & \text{解説: } \frac{4}{\sqrt{2}} = \frac{4\sqrt{2}}{\sqrt{2} \times \sqrt{2}} = \frac{4\sqrt{2}}{2} = 2\sqrt{2} \\ & 6\sqrt{2} - 2\sqrt{2} - 3\sqrt{2} = \sqrt{2} \end{aligned}$$

$$[10B] \sqrt{48} - \sqrt{75} + \sqrt{12}$$

$$\begin{aligned} & = 4\sqrt{3} - 5\sqrt{3} + 2\sqrt{3} \\ & = \cancel{\sqrt{3}} \end{aligned}$$

Point
簡略化と分母有理化の利用

$$\begin{aligned} [11A] & \sqrt{5} \times \sqrt{15} - \frac{12}{\sqrt{3}} \\ & = \underbrace{\sqrt{5} \times (\sqrt{5} \times \sqrt{3})}_{\downarrow} - \frac{12 \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}} \\ & = \underbrace{5\sqrt{3}}_{\downarrow} - 4\sqrt{3} = \cancel{\sqrt{3}} \end{aligned}$$

$$\begin{aligned} [11B] & (\sqrt{6} - \sqrt{2})^2 + \sqrt{3}(4 + \sqrt{27}) \\ & = (\sqrt{6})^2 - 2 \times \sqrt{6} \times \sqrt{2} + (\sqrt{2})^2 \\ & \quad + 4\sqrt{3} + 3 \times 3\sqrt{3} \\ & = 6 - 4\sqrt{3} + 2 + 4\sqrt{3} + 9 \\ & = \cancel{17} \end{aligned}$$

Point

$$\begin{aligned} \sqrt{5} \times \sqrt{15} &= \sqrt{75} \\ &= \frac{5\sqrt{25}}{5\sqrt{15}} \\ &= 5\sqrt{3} \end{aligned}$$

「時間がかかるので」 $\sqrt{5} \times \sqrt{3} = \cancel{5\sqrt{3}}$ 。

$$[12B] \sqrt{5}(2\sqrt{3} - 3) - \sqrt{45}(\sqrt{3} - 1)$$

$$\begin{aligned} &= 2\sqrt{15} - 3\sqrt{5} - 3\sqrt{5} \times \sqrt{3} + 3\sqrt{5} \\ &= 2\sqrt{15} - 3\sqrt{5} - 3\sqrt{15} + 3\sqrt{5} \\ &= -\cancel{\sqrt{15}} \end{aligned}$$

$$[13A] \left(\sqrt{2} + \frac{1}{\sqrt{2}} \right) \times \sqrt{8}$$

$$\begin{aligned} &= \sqrt{2} \times \sqrt{8} + \frac{1}{\sqrt{2}} \times \sqrt{8} \\ &= \sqrt{16} + \frac{\sqrt{8}}{\sqrt{2}} = \sqrt{\frac{8}{2}} = \sqrt{4} = 2 \end{aligned}$$

$$= 4 + 2 = \cancel{6}$$

$$\begin{aligned}
 [13B] & (\sqrt{2} + \sqrt{3}) \underbrace{\sqrt{12}}_{2\sqrt{3}} - \sqrt{6}(2 - \sqrt{6}) \\
 & = \sqrt{2} \times 2\sqrt{3} + \sqrt{3} \times 2\sqrt{3} - 2\sqrt{6} + 6 \\
 & = 2\sqrt{6} + 6 - 2\sqrt{6} + 6 \\
 & = \underline{\underline{12}}
 \end{aligned}$$

$$\begin{aligned}
 [14B] & (2 + \sqrt{3}) \times \underbrace{\sqrt{2}}_{\sqrt{6}} - \sqrt{8} \\
 & = 2\sqrt{2} + \sqrt{6} - \underbrace{2\sqrt{2}}_{\sqrt{6}} \\
 & = \underline{\underline{6}}
 \end{aligned}$$

$$\begin{aligned}
 [14A] & \sqrt{3}(\sqrt{12} + \sqrt{27}) \\
 & = \sqrt{36} + \sqrt{81} \\
 & = 6 + 9 = \underline{\underline{15}}
 \end{aligned}$$

$$\begin{aligned}
 [15A] & (\sqrt{8} + \sqrt{18}) \div \sqrt{2} \\
 & = \sqrt{8} \div \sqrt{2} + \sqrt{18} \div \sqrt{2} \\
 & = \frac{\sqrt{8}}{\sqrt{2}} + \frac{\sqrt{18}}{\sqrt{2}} = \sqrt{\frac{8}{2}} + \sqrt{\frac{18}{2}} = \sqrt{4} + \sqrt{9} \\
 & = 2 + 3 \\
 & = \underline{\underline{5}}
 \end{aligned}$$

Point

$$\frac{\sqrt{a}}{\sqrt{b}} = \sqrt{\frac{a}{b}}$$

※分子分母を併せてく。

$$\begin{aligned}
 [15B] & \sqrt{32} \div \sqrt{12} \div \sqrt{6} \\
 & = \sqrt{32} \times \frac{1}{\sqrt{12}} \times \frac{1}{\sqrt{6}} \\
 & = \frac{\sqrt{32}}{\sqrt{12} \times \sqrt{6}} = \frac{\sqrt{32}}{\sqrt{12 \times 6}} \\
 & = \sqrt{\frac{32}{12 \times 6}} = \sqrt{\frac{32}{32}} = \underline{\underline{1}}
 \end{aligned}$$

$$\begin{aligned}
 [16A] & \sqrt{24} \div \sqrt{18} \div \sqrt{3} \\
 & = \frac{\sqrt{24} \cancel{\times 4}}{\sqrt{18} \cancel{\times 2}} = \frac{\sqrt{4}}{\sqrt{9}} = \frac{2}{3} \\
 & \quad \text{※分子分母を併せてく。}
 \end{aligned}$$

$$\begin{aligned}
 [16B] & (\sqrt{50} - \sqrt{18}) \div \sqrt{2} \\
 & = \sqrt{50} \div \sqrt{2} - \sqrt{18} \div \sqrt{2} \\
 & = \frac{\sqrt{50} \cancel{\times 25}}{\sqrt{2}} - \frac{\sqrt{18} \cancel{\times 9}}{\sqrt{2}} \\
 & = \sqrt{25} - \sqrt{9} = 5 - 3 \\
 & = \underline{\underline{2}}
 \end{aligned}$$

$$\begin{aligned}
 [17A] & (2\sqrt{5} - 1)^2 - (6 - 4\sqrt{5}) \\
 & = (2\sqrt{5})^2 - 2 \times 2\sqrt{5} \times 1 + 1^2 - 6 + 4\sqrt{5} \\
 & = 20 - 4\sqrt{5} + 1 - 6 + 4\sqrt{5} \\
 & = \underline{\underline{15}}
 \end{aligned}$$

$$[17B] (\sqrt{80} - \sqrt{45}) \times \sqrt{20}$$

$$= \sqrt{80} \times \sqrt{20} - \sqrt{45} \times \sqrt{20}$$

$$= \sqrt{1600} - \sqrt{900}$$

$$= 40 - 30 = \frac{10}{\cancel{4}}$$

$$[18B] \sqrt{2}(\sqrt{50} - \sqrt{3}) - \sqrt{3}(\cancel{\sqrt{48}} - \sqrt{2})$$

$$= \sqrt{100} - \sqrt{6} - 12 + \sqrt{6}$$

$$= 10 - \sqrt{6} - 12 + \sqrt{6}$$

$$= \frac{-2}{\cancel{4}}$$

$$[19A] \sqrt{8} - \frac{2\sqrt{6}}{\sqrt{12}}$$

$$= 2\sqrt{2} - \left(\frac{2}{\sqrt{2}} \right) \frac{2\sqrt{2}}{\sqrt{2} \times \sqrt{2}} = \sqrt{2}$$

$$= 2\sqrt{2} - \sqrt{2}$$

$$= \frac{\sqrt{2}}{\cancel{4}}$$

$$[19B] \sqrt{64} \div \sqrt{12} \times \sqrt{27}$$

$$= 8 \div 2\sqrt{3} \times 3\sqrt{3}$$

$$= \frac{4\cancel{8} \times 3\sqrt{3}}{2\sqrt{3}} = \frac{12}{\cancel{4}}$$

$$[20A] \sqrt{27} - \left(\frac{6}{\sqrt{3}} \right) \frac{6\sqrt{3}}{\sqrt{3} \times \sqrt{3}} = 2\sqrt{3}$$

$$= 3\sqrt{3} - 2\sqrt{3}$$

$$= \frac{\sqrt{3}}{\cancel{4}}$$

$$[20B] (\sqrt{5} - 2)^2 + \sqrt{5}(\sqrt{20} + 4)$$

$$= 5 - 4\sqrt{5} + 4 + \sqrt{100} + 4\sqrt{5}$$

$$= 5 - 4\sqrt{5} + 4 + 10 + 4\sqrt{5}$$

$$= \frac{19}{\cancel{4}}$$

$$[21B] (\sqrt{3} - 1)(\sqrt{3} + 3) + (1 - \sqrt{3})^2$$

$$= 3 + 3\sqrt{3} - \sqrt{3} - 3$$

$$+ 1 - 2\sqrt{3} + 3$$

$$= \frac{4}{\cancel{4}}$$

$$[22A] \sqrt{45} - \sqrt{10} \times \sqrt{2}$$

$$= 3\sqrt{5} - \sqrt{20}$$

$$= 3\sqrt{5} - 2\sqrt{5}$$

$$= \frac{\sqrt{5}}{\cancel{4}}$$

$$\begin{aligned}
 [22B] & (\sqrt{24} - \sqrt{6}) \times \frac{2}{\sqrt{8}} \\
 &= \cancel{\sqrt{8}}^3 \times \frac{2}{\sqrt{8}} - \cancel{\sqrt{8}}^3 \times \frac{2}{\sqrt{8}} \\
 &= 2\sqrt{3} - \sqrt{3} \\
 &= \underline{\underline{\sqrt{3}}} \quad \text{#}
 \end{aligned}$$

$$\begin{aligned}
 [23B] & \sqrt{32} - \sqrt{72} + \sqrt{18} \\
 &= 4\sqrt{2} - 6\sqrt{2} + 3\sqrt{2} \\
 &= \underline{\underline{\sqrt{2}}} \quad \text{#}
 \end{aligned}$$

$$\begin{aligned}
 [24B] & (\sqrt{5} - \sqrt{3})(\sqrt{15} + \sqrt{4}) \\
 &= \sqrt{75} + \sqrt{20} - \sqrt{45} - \sqrt{12} \\
 &= 5\sqrt{3} + 2\sqrt{5} - 3\sqrt{5} - 2\sqrt{3} \\
 &= \underline{\underline{3\sqrt{3} - \sqrt{5}}} \quad \text{#}
 \end{aligned}$$

$$\begin{aligned}
 [25B] & \sqrt{27} \times \sqrt{32} \div \sqrt{24} \\
 &= \frac{\sqrt{27} \times \sqrt{32}}{\sqrt{24}} \\
 &= \sqrt{9} \times \sqrt{4} = 3 \times 2 \\
 &= \underline{\underline{6}} \quad \text{#}
 \end{aligned}$$

$$\begin{aligned}
 [23A] & (\sqrt{6} + 4)(\sqrt{6} - 1) - \sqrt{54} \\
 &= 6 - \cancel{\sqrt{6}} + 4\sqrt{6} - 4 - 3\sqrt{6} \\
 &= \underline{\underline{2}} \quad \text{#}
 \end{aligned}$$

$$\begin{aligned}
 [24A] & \frac{\sqrt{24}}{3} + \left(\frac{\sqrt{2}}{\sqrt{3}} \right) \frac{\sqrt{2} \times \sqrt{3}}{\sqrt{3} \times \sqrt{3}} = \frac{\sqrt{6}}{3} \\
 &= \frac{2\sqrt{6}}{3} + \frac{\sqrt{6}}{3} \\
 &= \frac{3\sqrt{6}}{3} = \underline{\underline{\sqrt{6}}} \quad \text{#}
 \end{aligned}$$

$$\begin{aligned}
 [25A] & \sqrt{6}(\sqrt{18} - \sqrt{2}) - \sqrt{27} \\
 &= \sqrt{6}(\sqrt{6} \times \sqrt{3} - \sqrt{2}) - 3\sqrt{3} \\
 &= 6\sqrt{3} - 2\sqrt{3} - 3\sqrt{3} \\
 &= \underline{\underline{\sqrt{3}}} \quad \text{#}
 \end{aligned}$$

$$\begin{aligned}
 [26A] & \frac{20}{\sqrt{5}} - \sqrt{45} \\
 &= 4\sqrt{5} - 3\sqrt{5} \\
 &= \underline{\underline{\sqrt{5}}} \quad \text{#}
 \end{aligned}$$

$$\begin{aligned} [26B] & (\sqrt{3} + \sqrt{2})^2 - \sqrt{24} \\ &= 3 + 2\sqrt{6} + 2 - 2\sqrt{6} \\ &= \underline{\underline{5}} \end{aligned}$$

$$\begin{aligned} [27A] & \sqrt{3} \times (\sqrt{27} - \sqrt{12}) \\ &= \sqrt{81} - \sqrt{36} \\ &= 9 - 6 \\ &= \underline{\underline{3}} \end{aligned}$$

$$\begin{aligned} [27B] & (2\sqrt{3} + \sqrt{5}) \left(\frac{6}{\sqrt{3}} - \sqrt{5} \right) \\ &= 2\sqrt{3} \times \frac{6}{\sqrt{3}} + 2\sqrt{3} \times (-\sqrt{5}) \\ &\quad + \sqrt{5} \times \frac{6}{\sqrt{3}} + \sqrt{5} \times (-\sqrt{5}) \\ &= 12 - 2\sqrt{15} + \frac{6\sqrt{5}}{\sqrt{3}} - 5 \\ &\quad \text{---} \\ &= \underline{\underline{7}} \end{aligned}$$

$$\begin{aligned} [29A] & (\sqrt{12} + \sqrt{18})(\sqrt{3} - \sqrt{2}) \\ &= (2\sqrt{3} + 3\sqrt{2})(\sqrt{3} - \sqrt{2}) \\ &= 6 - 2\sqrt{6} + 3\sqrt{6} - 6 \\ &= \underline{\underline{\sqrt{6}}} \end{aligned}$$

$$\begin{aligned} [28A] & (\sqrt{8} + \sqrt{2})(\sqrt{32} - \sqrt{8}) \\ &= (2\sqrt{2} + \sqrt{2})(4\sqrt{2} - 2\sqrt{2}) \\ &= 3\sqrt{2} \times 2\sqrt{2} \\ &= \underline{\underline{12}} \end{aligned}$$

$$\begin{aligned} [30A] & \frac{3}{\sqrt{5}} + \frac{\sqrt{20}}{5} \\ &= \frac{3\sqrt{5}}{\sqrt{5}\times\sqrt{5}} + \frac{2\sqrt{5}}{5} \\ &= \frac{3\sqrt{5}}{5} + \frac{2\sqrt{5}}{5} \\ &= \frac{5\sqrt{5}}{5} = \underline{\underline{\sqrt{5}}} \end{aligned}$$

$$\begin{aligned} [30B] & (\sqrt{3} + 1)^2 - 2(\sqrt{3} + 1) \\ &= 3 + 2\sqrt{3} + 1 - 2\sqrt{3} - 2 \\ &= \underline{\underline{2}} \end{aligned}$$

$$[31A] \quad \sqrt{3}(\sqrt{5}-3) + \sqrt{27}$$

$$= \sqrt{15} - 3\sqrt{3} + 3\sqrt{3}$$

$$= \frac{\sqrt{15}}{\cancel{4}}$$

$$[31B] \quad \sqrt{32} - \sqrt{8} - \sqrt{2}$$

$$= 4\sqrt{2} - 2\sqrt{2} - \sqrt{2}$$

$$= \frac{\sqrt{2}}{\cancel{4}}$$

$$[R2A] \quad (\sqrt{10} + \sqrt{5})(\sqrt{6} - \sqrt{3})$$

$$= \sqrt{60} - \sqrt{30} + \sqrt{30} - \sqrt{15}$$

$$= 2\sqrt{15} - \sqrt{15}$$

$$= \frac{\sqrt{15}}{\cancel{4}}$$

$$[R2B] \quad (\sqrt{5}-1)^2 + \sqrt{20}$$

$$= 5 - 2\sqrt{5} + 1 + 2\sqrt{5}$$

$$= \frac{6}{\cancel{4}}.$$

$$[R3-A] \quad \frac{3}{\sqrt{2}} - \frac{2}{\sqrt{8}}$$

$$= \frac{3\sqrt{2}}{\sqrt{2}\times\sqrt{2}} - \frac{2\times\sqrt{2}}{2\sqrt{2}\times\sqrt{2}}$$

$$= \frac{3\sqrt{2}}{2} - \frac{\sqrt{2}}{2}$$

$$= \frac{2\sqrt{2}}{2} = \frac{\sqrt{2}}{\cancel{2}}$$

$$[R3B] \quad \sqrt{48} - 3\sqrt{6} \div \sqrt{2}$$

$$= 4\sqrt{3} - \frac{3\sqrt{6}}{\sqrt{2}}$$

$$= 4\sqrt{3} - 3\sqrt{3} = \frac{\sqrt{3}}{\cancel{4}}$$

$$[R4A] \quad (\sqrt{5}-\sqrt{3})(\sqrt{20}+\sqrt{12})$$

$$= (\sqrt{5}-\sqrt{3})(2\sqrt{5}+2\sqrt{3})$$

$$= 2(\sqrt{5}-\sqrt{3})(\sqrt{5}+\sqrt{3})$$

$$= 2 \{ (\sqrt{5})^2 - (\sqrt{3})^2 \}$$

$$= 2(5-3) = \frac{4}{\cancel{4}}$$

$$[R4B] \quad (\sqrt{5}+\sqrt{2})^2 - (\sqrt{5}-\sqrt{2})^2$$

$$\sqrt{5}+\sqrt{2}=M \quad \sqrt{5}-\sqrt{2}=N \text{ とおくと,}$$

$$M^2-N^2=(M+N)(M-N)$$

$$= 2\sqrt{5} \times 2\sqrt{2}$$

$$= 2 \times 2 \times \sqrt{5} \times \sqrt{2}$$

$$= \frac{4\sqrt{10}}{\cancel{4}}$$

[式の値]

【5B】 $x = \sqrt{3} + 2$ 、 $y = \underbrace{\sqrt{3} - 2}_{\text{代入}}$ のとき、 $x^2 + y^2 - 2xy$ の解を求めなさい。

$$x^2 + y^2 - 2xy = (x-y)^2$$

$$\left\{ (\sqrt{3}+2) - (\sqrt{3}-2) \right\}^2 = 4^2 = \cancel{16}$$

【6B】 $x = \sqrt{3} - 1$ 、 $y = \sqrt{2}$ のとき、 $x^2 + y^2 + 2x$ の解を求めなさい。

$$\begin{aligned} &= x(x+2) + y^2 \\ &= (\sqrt{3}-1)(\sqrt{3}+1) + (\sqrt{2})^2 \\ &= 3-1+2 = \cancel{4} \end{aligned}$$

【12A】 $x = 3 + \sqrt{2}$ のとき、 $x^2 - 6x$ の解を求めなさい。

$$\begin{aligned} &= x(x-6) \\ &= (3+\sqrt{2})(-3+\sqrt{2}) \\ &= -9+2 \\ &= \cancel{-7} \end{aligned}$$

【18A】 $x = 2\sqrt{3} + 1$ のとき、 $x^2 - 2x + 1$ の解を求めなさい。

$$\begin{aligned} &= (x-1)^2 \\ &= (2\sqrt{3} + 1 - 1)^2 \\ &= (2\sqrt{3})^2 = \cancel{12} \end{aligned}$$