

$$15. 4x^2 + 4x + 1$$

$$4x \cdot x \quad 2x \cdot 2x \quad (2x + 1)(2x + 1)$$

$$4x^2 + 2x + 2x + 1$$

$$4x^2 + 4x + 1 \checkmark$$

$$16. 3x^2 - 4x - 4$$

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

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

$$3x^2 - 4x - 4$$

$$17. x^4 - 3x^2 - 4$$

$$(x^2 + 1)(x^2 - 4)$$

$$a^2 - b^2 = (a + b)(a - b)$$

$$(x^2 + 1)(x - 2)(x + 2)$$

$$18. 75n^3 - 3n$$

$$3n(25n^2 - 1)$$

$$3n(5n + 1)(5n - 1)$$

$$20. \frac{35x^2y^3}{-7x^3y}$$

$$\frac{-5y^2}{x}$$

$$22. (x^2y^{-5})(2x^{-4}y^4)$$

$$2x^{-2}y^{-1}$$

$$\left(\frac{2}{x^2y}\right)$$

$$24. \left(\frac{m^2}{n}\right)^{-2} \left(\frac{m^0}{n^{-1}}\right)^3$$

$$\frac{m^{-4}}{n^{-2}} \cdot \frac{m^0}{n^{-3}} = \frac{m^{-4}}{n^{-5}}$$

$$\left(\frac{n^5}{m^4}\right)$$

$$25. \left(\frac{c^2}{d}\right)^{-3} (2c^{-1}d)^{-3}$$

$$\left(\frac{c^{-6}}{d^{-3}}\right) \left(\frac{2^{-3}c^3d^{-3}}{1}\right)$$

$$\frac{2^{-3}c^{-3}d^{-3}}{d^{-3}} = \frac{\cancel{d^3}}{2^3c^3\cancel{d^3}}$$

$$\left(\frac{1}{8c^3}\right)$$

$$28. 2b(b+1)(b-2)$$

$$(2b^2+2b)(b-2)$$

$$2 \cdot 3 \cdot 4 \quad 2b^3 - 4b^2 + 2b^2 - 4b$$

$$6 \cdot 4 \quad \textcircled{2b^3 - 2b^2 - 4b}$$

$$\neq 6 \cdot 8$$

$$31. \quad \begin{array}{r} 2 - y^2 = 0 \\ -2 \quad \quad -2 \end{array}$$

$$(-y^2 = -2)(-1)$$

$$\sqrt{y^2} = \sqrt{2}$$

$$y = \pm\sqrt{2}$$

$$35. \quad \frac{6\sqrt{2}}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{6\sqrt{6}}{\sqrt{9}} = \frac{6\sqrt{6}}{3}$$

$$\textcircled{2\sqrt{6}}$$

$$36. \quad \sqrt{6} \sqrt{10} = \sqrt{60}$$

$$\textcircled{2\sqrt{15}} \quad \begin{array}{c} \wedge \\ 6 \quad 10 \\ \downarrow \quad \downarrow \\ 2 \cdot 3 \quad 2 \cdot 5 \end{array}$$

$$39. \quad 3i\sqrt{2} \cdot \sqrt{-12} \stackrel{4i^2}{=} 3$$

$$3i\sqrt{2} \cdot 2i\sqrt{3}$$

$$6i^2\sqrt{6}$$

$$\textcircled{-6\sqrt{6}}$$

$$41. \quad 4i(5+2i)$$

$$\begin{array}{l} 20i + 8i^2 \\ 20i + 8(-1) \end{array} \quad \textcircled{-8 + 20i}$$

$$\begin{aligned} 43. & (1 - i\sqrt{3})^2 \\ & (1 - i\sqrt{3})(1 - i\sqrt{3}) \\ & 1 - i\sqrt{3} - i\sqrt{3} + i^2 \cdot \sqrt{9} \\ & 1 - 2i\sqrt{3} - 3 \\ & \boxed{-2 - 2i\sqrt{3}} \end{aligned}$$