

$$\textcircled{1} \quad 0.01 \times 1.25 = 0.0125$$

$$\frac{0.0125}{0.025} \quad \textcircled{B}$$

$$\textcircled{2} \quad 3 \left(\frac{5}{12} + \frac{3}{8} \right)$$

$$3 \left(\frac{10}{24} + \frac{9}{24} \right)$$

$$\cancel{3} \left(\frac{19}{24} \right)$$

$$\left(\frac{19}{8} \right) \quad \textcircled{D}$$

$$\textcircled{3} \quad \frac{1}{(\sqrt{2}+\sqrt{3})(\sqrt{2}-\sqrt{3})}$$

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

$$= \boxed{\sqrt{3}-\sqrt{2}} \quad \textcircled{D}$$

$$\textcircled{4} \quad y \cdot \frac{x - \frac{1}{y} \cdot y}{\frac{x}{y} \cdot y} \rightarrow \boxed{\frac{xy-1}{x}} \quad \textcircled{E}$$

$$\textcircled{5} \quad \frac{1}{(x-2)} - \frac{1}{(x+2)}$$

$$= \frac{x+2 - (x-2)}{(x-2)(x+2)}$$

$$= \frac{x+2-x+2}{(x^2-4)}$$

$$= \boxed{\frac{4}{x^2-4}} \quad \textcircled{D}$$

$$\textcircled{6} \quad 2x^2 - 5x + 3$$

$$(2x^2 - 2x)(-3x + 3) \quad \textcircled{B}$$

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

$$\underline{(x-1)}(2x-3)$$

$$\begin{aligned} \textcircled{7} \quad x^2 - x &= 6 \\ x^2 - x - 6 &= 0 & \textcircled{A} \\ (x-3)(x+2) &= 0 \\ x-3=0 \quad | \quad x+2=0 \\ x=3 \quad | \quad x=-2 \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad x^2 + 6x + 7 &= 0 \\ x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ &= \frac{-6 \pm \sqrt{6^2 - 4(1)(7)}}{2(1)} \\ &= \frac{-6 \pm \sqrt{36 - 28}}{2} \\ &= \frac{-6 \pm \sqrt{8}}{2} \\ &= \frac{-6 \pm 2\sqrt{2}}{2} & \textcircled{C} \\ &= \boxed{-3 \pm \sqrt{2}} \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad f(x) &= 3x^4 - 7x^3 + 2x - 9 \\ f(-x) &= 3(-x)^4 - 7(-x)^3 + 2(-x) - 9 \\ &= \boxed{3x^4 - 7x^3 - 2x - 9} & \textcircled{B} \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad f(x) &= x^2 + 2x + 5 \\ f(x+h) &= (x+h)^2 + 2(x+h) + 5 & \textcircled{D} \\ &= \boxed{x^2 + 2xh + h^2 + 2x + 2h + 5} \end{aligned}$$

$$\begin{aligned} \textcircled{11} \quad (x-1)(x+2) &\leq 0 \\ \textcircled{1} \text{ Roots: } & x = -2, 1 \\ \textcircled{2} \quad & \begin{array}{c} + \quad - \quad + \\ \leftarrow \quad | \quad | \quad | \quad \rightarrow \\ (-2) \quad -2 \quad (1) \quad 1 \quad (2) \end{array} \\ \textcircled{3} \quad x \in & (-2, 1) \\ \boxed{-2 < x < 1} & \textcircled{E} \end{aligned}$$

$$(12) |x-3| \leq 5$$

$$x-3 \leq 5$$

$$x \leq 8$$

$$x-3 \geq -5$$

$$x \geq -2$$

$$\boxed{-2 \leq x \leq 8}$$

(C)

$$(13) 8^{-1/3} \times 3^0$$

$$\frac{1}{8^{1/3}} \times 1$$

$$\frac{1}{2} \times 1$$

$$\boxed{\frac{1}{2}} \text{ (C)}$$

$$(14) 2^{-3} + 2^3$$

$$\frac{1}{2^3} + 8$$

$$\frac{1}{8} + 8$$

$$\frac{1}{8} + \frac{64}{8}$$

$$\boxed{\frac{65}{8}} \text{ (D)}$$

$$(15) (16+9)^{-1/2}$$

$$(25)^{-1/2}$$

$$\frac{1}{25^{1/2}}$$

$$\boxed{\frac{1}{5}} \text{ (C)}$$

$$(16) \frac{1}{(8x^3)^{1/3}} \cdot (4x^2)^{1/2}$$

$$\frac{1}{2x} \cdot 2x$$

$$(1) \text{ (C)}$$

$$(17) 2^x = 20$$

$$\boxed{\log_2 20 = x} \text{ (E)}$$

$$(18) \log_{10} 4 + \log_{10} 5$$

$$= \boxed{\log_{10} 20} \text{ (B)}$$

$$(19) \log_3 81 = \boxed{4} \text{ (A)}$$

$$* 3^x = 81$$

$$3^x = 3^4$$

$$x = 4$$

$$(20) d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$d = \sqrt{(6-3)^2 + (9-7)^2}$$

$$d = \sqrt{9+4}$$

$$d = \boxed{\sqrt{13}} \text{ (B)}$$

$$(21) m = \frac{y_2 - y_1}{x_2 - x_1}$$

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

$$= 4$$

$$y-2 = 4(x-2)$$

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

$$\boxed{0 = 4x - y - 6} \text{ (B)}$$

$$\textcircled{22} \quad y = \underline{2}x - 3$$

$$m = 2$$

$$\perp m = \boxed{-\frac{1}{2}} \quad \textcircled{C}$$

$$\begin{array}{l} \textcircled{23} \quad x - y = 3 \\ \textcircled{+} \quad x + y = 1 \\ \hline 2x = 4 \\ x = 2 \end{array} \quad \left. \begin{array}{l} 2 - y = 3 \\ -y = 1 \\ y = -1 \end{array} \right\} (2, -1) \quad \textcircled{C}$$

$$\textcircled{24} \quad \underline{I} \quad y = 3 \quad (\text{horizontal line}) \quad \leftarrow \begin{array}{c} \text{---} \\ | \\ \text{---} \end{array}$$

$$\underline{II} \quad xy = 3 \rightarrow y = \frac{3}{x} \quad (\text{rational function})$$

$$\underline{III} \quad x^2 + y^2 = 3 \quad (\text{circle})$$

$$\underline{IV} \quad x + y = 3 \rightarrow y = -x + 3$$

