

6.6

$$\textcircled{1} \textcircled{a} \quad y = x^2 - 6x - 27$$

$$(x-9)(x+3)$$

$$\textcircled{b} \quad y = x^3 + 6x^2 - 27x$$

$$x(x^2 + 6x - 27)$$

$$x(x-3)(x+9)$$

$$\textcircled{c} \quad y = x^4 - 6x^2 - 27 \quad u = x^2$$

$$u^2 - 6u - 27$$

$$(u-9)(u+3)$$

$$(x^2-9)(x^2+3)$$

$$\textcircled{3} \textcircled{a} \quad y = (2x-3)(x+14)$$

$$\begin{array}{rcl} 2x-3 & \geq & 0 \\ 2x & \geq & 3 \\ x & \geq & \frac{3}{2} \end{array} \quad \begin{array}{rcl} x+14 & \geq & 0 \\ x & \geq & -14 \end{array}$$

$$\boxed{x \geq \frac{3}{2} \text{ or } x \leq -14}$$

$$\textcircled{b} \quad y = -2(x^2+3)(x-7)$$

$$\begin{array}{rcl} x^2+3 & \geq & 0 \\ x^2 & \geq & -3 \end{array} \quad \begin{array}{rcl} x-7 & \geq & 0 \\ x & \geq & 7 \end{array}$$

$$\boxed{x \leq 7}$$

$$\textcircled{c} \quad y = (x-4)^2(3x+7)$$

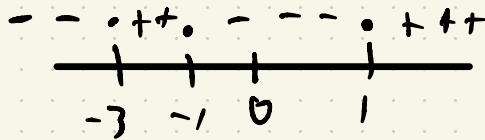
$$\begin{array}{rcl} x-4 & \geq & 0 \\ x & \geq & 4 \end{array} \quad \begin{array}{rcl} 3x+7 & \geq & 0 \\ 3x & \geq & -7 \\ x & \geq & -\frac{7}{3} \end{array}$$

$$x \geq -\frac{7}{3}$$

$$\textcircled{d} \quad Y = (x+3)(x-1)(x+1)$$

$$x+3 \geq 0 \quad x-1 \geq 0 \quad x+1 \geq 0$$

$$x \geq -3 \quad x \geq 1 \quad x \geq -1$$



$$-3 \leq x \leq -1 \text{ or } x \geq 1$$

(4) (4) 3rd degree

(b) 5th degree

(c) 4th degree

(d) 6th degree