6.6

① (a) $y = x^2 - 6x - 27$

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

(b) $y = x^3 + 6x^2 - 27x$

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

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

(c) $y = x^4 - 6x^2 - 27$ $\quad u = x^2$

$u^2 - 6u - 27$

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

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

③ (a) $y = (2x-3)(x+14)$

$2x - 3 \geq 0$ $\quad x + 14 \geq 0$

$2x \geq 3$ $\quad x \geq -14$

$x \geq \frac{3}{2}$

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

(b) $y = -2(x^2+3)(x-7)$

$x^2 + 3 \geq 0$ $\quad x - 7 \geq 0$

$x^2 \geq -3$ $\quad x \geq 7$

$\boxed{x \leq 7}$

(c) $y = (x-4)^2(3x+7)$

$x - 4 \geq 0$ $\quad 3x + 7 \geq 0$

$x \geq 4$ $\quad 3x \geq -7$

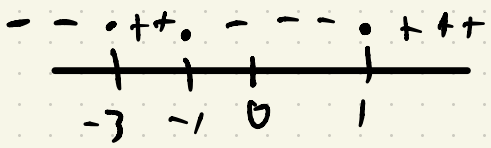
$x \geq -\frac{7}{3}$

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

(d) $Y = (x+3)(x-1)(x+1)$

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

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



$-3 \leq x \leq -1$ or $x \geq 1$

(4) (a) 3rd degree

(b) 8th degree

(c) 4th degree

(d) 6th degree