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1. $(x+3)(2x-7)(x-6)(x+2)(x-1) \leq 0$

$x \in (-\infty, -3] \cup [-2, 1] \cup [\frac{7}{2}, 6]$

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2. $(x+2)(x-7)(4-3x)(x-3)x > 0$

$\Rightarrow (x+2)(x-7)(3x-4)(x-3)x < 0.$

$x \in (-\infty, -2) \cup (0, \frac{4}{3}) \cup (3, 7)$

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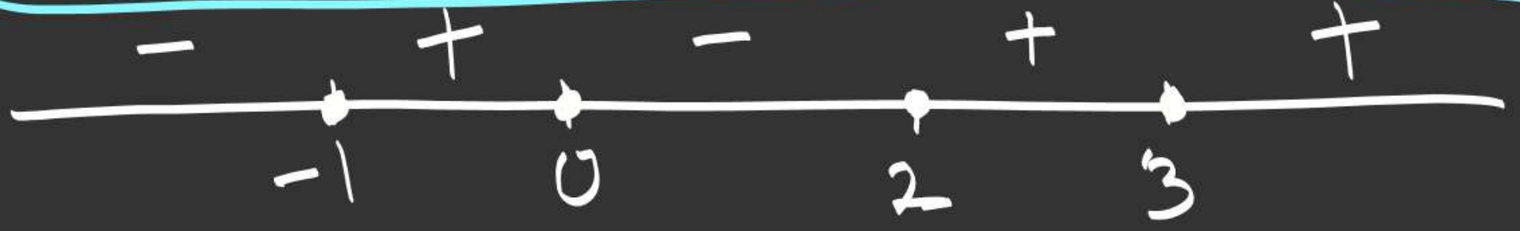
3. $(x-3)^2(x-2)^3 x(x+1) \leq 0$

$x \in (-\infty, -1] \cup [0, 2] \cup \{3\}$



$(x-2)^1 > 0 \quad x > 2$

$< 0 \quad x < 2$

$(x-2)^3 > 0 \quad x > 2$

$< 0 \quad x < 2$

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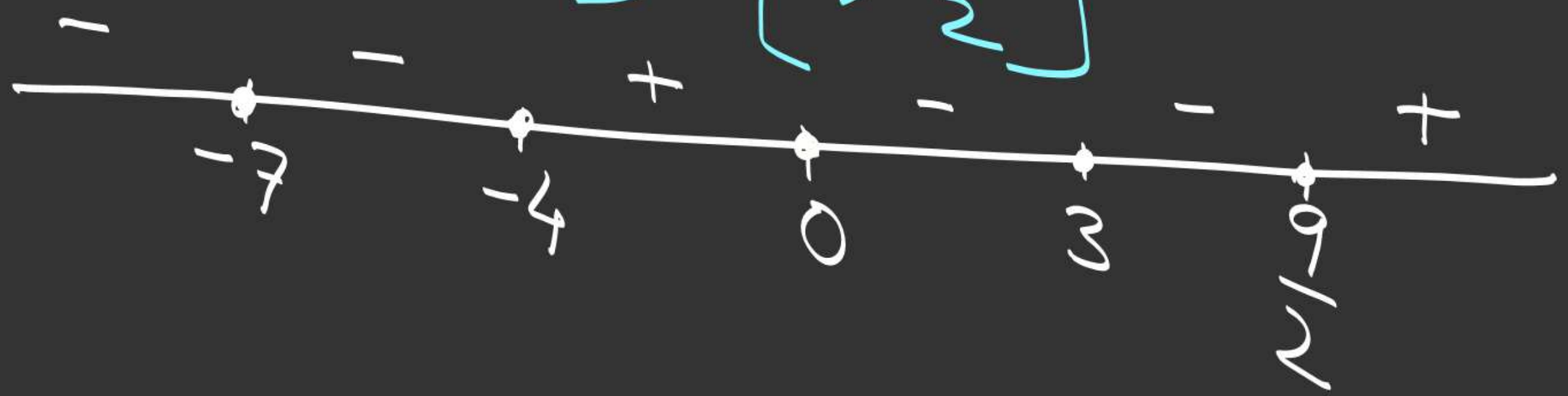
4. $(2x-9)^3(x+7)^6(x-3)^2(x+4)^5x^3 \leq 0$

$x \in (-\infty, -4] \cup [0, \frac{9}{2}]$



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5:

① $(3-x)^3(4-3x)^4(x+2)^7(x-6)^6(x^2-16)^3 \geq 0$

② ——————— // ——————— ≤ 0

① $(x-3)^3(3x-4)^4(x+2)^7(x-6)^6(x-4)^3(x+4)^3 \leq 0$

② $(x-3)^3(3x-4)^4(x+2)^7(x-6)^6(x-4)^3(x+4)^3 \geq 0$

① $x \in [-4,-2] \cup [3,4] \cup \left\{\frac{4}{3}, 6\right\}$

② $x \in (-\infty,-4] \cup [-2,3] \cup [4,\infty)$

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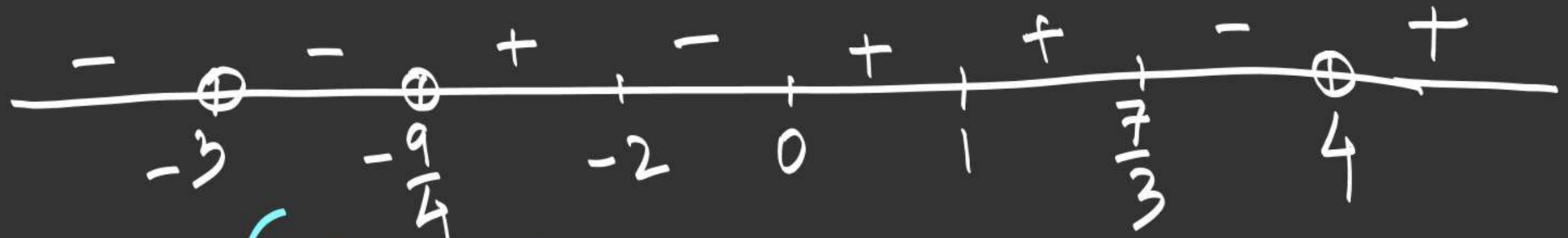
6. ① $\dfrac{(3x-7)^7(x+2)^3(x-1)^6 x}{(4x+9)^9(x+3)^4(x-4)^5} \leq 0$ ≥ 0

② $x \in (-\infty,-3) \cup (-3,-\frac{9}{4}) \cup [-2,0] \cup [\frac{7}{3},4) \cup \{1\}$



$(-\infty,-\frac{9}{4}) \cup [-2,0] \cup [\frac{7}{3},4) \cup \{1\} - \{-3\}$

② $x \in (-\frac{9}{4},-2] \cup [0,\frac{7}{3}] \cup (4,\infty)$

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7.

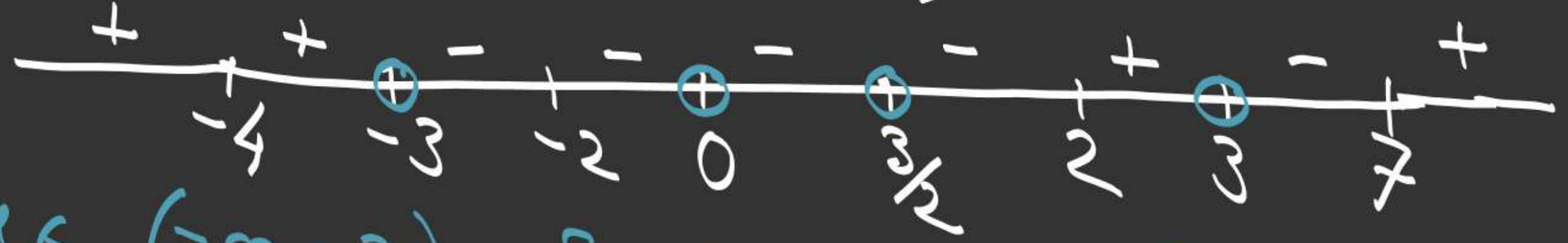
$$\frac{(x-2)(x+4)^4(7-x)^7(x+2)^2}{(x^2-9)^9\, x^8\, (3-2x)^4} \le 0$$

< 0

> 0

≥ 0

$$\frac{(x-2)(x+4)^4(x-7)^7(x+2)^2}{(x-3)^9(x+3)^9\, x^8\, (2x-3)^4} \geq 0$$



$x \in (-\infty, -3) \cup [2, 3) \cup [7, \infty) \cup \{-2\}$