

PERTIDAKSAMAAN

Wardah K. (04211040)

No.

Date

Contoh Handwriting Pertidaksamaan

Penyelesaian

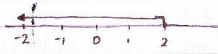
① $4x - 7 < 3x - 5$ Hp interval $(-\infty, 2) = \{x | x < 2\}$

$4x < 3x - 5 + 7$

$4x < 3x + 2$

$4x - 3x < 2$

$x < 2$



② $2x + 16 < x + 25$ Hp interval $(-\infty, 9) = \{x | x < 9\}$

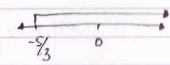
$x < 9$



③ $7x - 1 \leq 10x + 4$ Hp interval $(-\frac{5}{3}, \infty) = \{x | x \geq -\frac{5}{3}\}$

$-3x \leq 5$

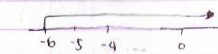
$x \geq -\frac{5}{3}$



④ $6x - 10 \geq 5x - 16$ Hp interval $(-6, \infty) = \{x | x \geq -6\}$

$6x - 5x \geq -16 + 10$

$x \geq -6$

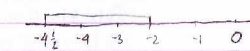


⑤ $-6 < 2x + 3 < -1$ Hp interval $(-\frac{9}{2}, -2) = \{x | -\frac{9}{2} < x < -2\}$

$-6 - 3 < 2x < -1 - 3$

$-9 < 2x < -4$

$-\frac{9}{2} < x < -2$



⑦ $2x - 4 \leq 6 - 7x \leq 3x + 6$ Hp: $(0, \frac{10}{9}) = \{x | \frac{10}{9} \leq x \leq 0\}$

$2x - 4 \leq -7x \leq 3x + 6 - 6$

$2x - 10 \leq -7x \leq 3x + 0$

$-7x \leq 3x + 0$

$-7x - 3x \leq 0$

$-10x \leq 0 \Rightarrow x \geq 0$

$2x - 10 \leq -7x$

$2x + 7x \leq 10$

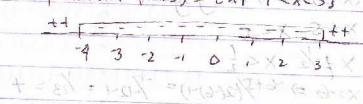
$9x \leq 10$

$x \leq \frac{10}{9}$

⑧ $x^2 + x - 12 < 0$ Hp interval $(-4, 3) = \{x | -4 < x < 3\}$

$(x+4)(x-3) < 0$

$x = -4 \quad x = 3$



⑨ $2x^2 + 7x - 15 \geq 0$ Hp interval $(-\infty, -5) \cup (\frac{3}{2}, \infty)$

$(2x-3)(x+5) \geq 0$

$x = \frac{3}{2} \quad x = -5$

mis $\rightarrow x = -6 \rightarrow 2(-6)^2 + 7(-6) - 15 =$

$2 \cdot 36 + (-42) - 15 =$

$72 - 42 - 15 = 15 > 0$

$x = 0 \rightarrow 0 + 0 - 15 = -15 < 0$

$x = 2 \rightarrow 2(2)^2 + 7(2) - 15 =$

$2 \cdot 4 + 14 - 15 =$

$8 + 14 - 15 = 7 > 0$

$22 - 15 = 7 > 0$

⑩ $2x^2 + 7x - 15 \geq 0$ Hp interval $(-\infty, -5) \cup (\frac{3}{2}, \infty)$

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$2x^2 + 7x - 15 \geq 0$

$(2x-3)(x+5) \geq 0$

$x = \frac{3}{2} \quad x = -5$

mis $\rightarrow x = -6 \rightarrow 2(-6)^2 + 7(-6) - 15 =$

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$8 + 14 - 15 = 7 > 0$

$22 - 15 = 7 > 0$

$2x^2 + 7x - 15 \geq 0$

$(2x-3)(x+5) \geq 0$

$x = \frac{3}{2} \quad x = -5$

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(29) $|2 + \frac{5}{x}| > 1 \Leftrightarrow 2 + \frac{5}{x} < -1$ atau $2 + \frac{5}{x} > 1$

$\frac{5}{x} < -3$ atau $\frac{5}{x} > -1$

$\frac{x}{5} > -\frac{1}{5}$ atau $\frac{x}{5} > -1$

$x > -\frac{5}{5}$ atau $x > -5$

$x > -1$ atau $x > -5$

$x > -1$ atau $x > -5$

$x > -1$ atau $x > -5$

$x > -1$ atau $x > -5$

$x > -1$ atau $x > -5$

$x > -1$ atau $x > -5$

$x > -1$ atau $x > -5$

(27) $|\frac{x}{2} + 7| > 2 \Leftrightarrow \frac{x}{2} + 7 < -2$ atau $\frac{x}{2} + 7 > 2$

$\frac{x}{2} < -9$ atau $\frac{x}{2} > -5$

$x < -18$ atau $x > -10$

$x < -18$ atau $x > -10$

$x < -18$ atau $x > -10$

$x < -18$ atau $x > -10$

(16) $|\frac{3x}{5} + 1| \leq 4 \Rightarrow -4 \leq \frac{3x}{5} + 1 \leq 4$

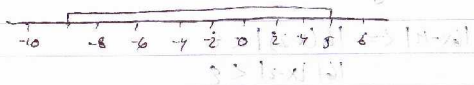
$-4 - 1 \leq \frac{3x}{5} \leq 4 - 1$

$-5 \leq \frac{3x}{5} \leq 3$

$-25 \leq 3x \leq 15$

$-\frac{25}{3} \leq x \leq 5$

$-8\frac{1}{3} \leq x \leq 5$



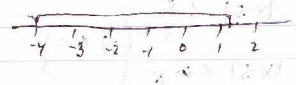
(11) $|3x + 4| < 8 \Leftrightarrow -8 < 3x + 4 < 8$

$-8 - 4 < 3x < 8 - 4$

$-12 < 3x < 4$

$-4 < x < \frac{4}{3}$

$-4 < x < 1\frac{1}{3}$



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31) $|x-3| < 0,5 \Rightarrow |5x-15| < 2,5$
 $|5x-15| \Leftrightarrow |5(x-3)| < 2,5$
 $\Leftrightarrow |5||x-3| < 2,5$
 $\Leftrightarrow 5|x-3| < 2,5$
 $\Leftrightarrow |x-3| < \frac{2,5}{5}$
 $\Leftrightarrow |x-3| < 0,5$ terbukti

32) $|x-2| < \frac{\epsilon}{6} \Rightarrow |6x-12| < \epsilon$
 $|6x-12| \Leftrightarrow |6(x-2)| < \epsilon$
 $|6||x-2| < \epsilon$
 $6|x-2| < \epsilon$
 $|x-2| < \frac{\epsilon}{6}$ terbukti

34) $|x-5| < \delta \Rightarrow |3x-15| < \epsilon$
 $|3x-15| \Leftrightarrow |3(x-5)| < \epsilon$
 $|3||x-5| < \epsilon$
 $|x-5| < \frac{\epsilon}{3}$
 $|x-5| < \delta$ } $\Rightarrow \delta = \frac{\epsilon}{3}$

16) $|x-2| < \delta \Rightarrow |(4x-5)-3| < \epsilon$
 $|4x-8| < \epsilon$
 $|4(x-2)| < \epsilon$
 $4|x-2| < \epsilon$
 $|x-2| < \frac{\epsilon}{4}$
 $|x-2| < \delta$ } $\Rightarrow \delta = \frac{\epsilon}{4}$

20) $|\frac{1}{x}-3| > 6 \Leftrightarrow \frac{1}{x}-3 < -6$ atau $\frac{1}{x}-3 > 6$
 $\frac{1}{x} < -6+3$ atau $\frac{1}{x} > 6+3$
 $\frac{1}{x} < -3$ atau $\frac{1}{x} > 9$
 $x > -\frac{1}{3}$ atau $x < \frac{1}{9}$
 $x > -\frac{1}{9}$ atau $x < \frac{1}{9}$