

Quiz

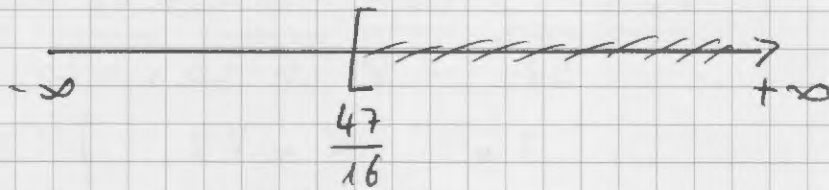
$$a.) \quad x - 7 \geq (8 - 3x) \cdot 5$$

$$x - 7 \geq 40 - 15x \quad | +15x + 7$$

$$16x \geq 40 + 7$$

$$16x \geq 47 \quad | :16$$

$$x \geq \frac{47}{16}$$



$$S : \left[\frac{47}{16}; +\infty \right[$$

$$S = \left\{ x \mid x \geq \frac{47}{16} \right\}$$

$$b.) \quad -\frac{4-x}{4} + \frac{x-3}{3} \leq \frac{1}{3} (1-x) + \frac{37x-48}{12}$$
$$\frac{4(x-3)}{12} - \frac{3(4-x)}{12} \leq \frac{36(1-x)}{12} + \frac{37x-48}{12} \quad | \cdot 12$$

$$4(x-3) - 3(4-x) \leq 36(1-x) + 37x - 48$$

$$4x - 12 - 12 + 3x \leq 36 - 36x + 37x - 48$$

$$x - 24 \leq x - 12 \quad | +24 - x$$

$$0x \leq 12$$

$$S = \mathbb{R}$$

(,x' can be any number $\rightarrow$ the result is always equal to zero)

$$c.) \frac{1}{2} \left(2x - \frac{1+x}{5} \right) - \frac{1}{2} \left(1 - \frac{2+x}{3} \right) \leq \frac{12x(x-1)}{21}$$

$$\frac{2x}{2} - \frac{1+x}{10} - \frac{1}{2} + \frac{2+x}{6} \leq x-1$$

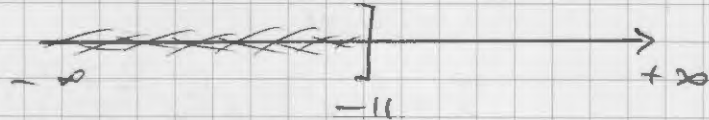
$$\frac{30x}{30} - \frac{3+3x}{30} - \frac{15}{30} + \frac{10+5x}{30} \leq \frac{30x-30}{30}$$

$$\frac{30x-3-3x-15+10+5x}{30} \leq \frac{30x-30}{30}$$

$$32x-8 \leq 30x-30 \quad | -30x+8$$

$$2x \leq -22 \quad | :2$$

$$\underline{x \leq -11}$$



$$S:] -\infty; -11]$$

$$S = \{x \mid x \leq -11\}$$

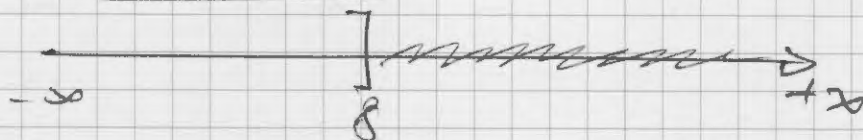
$$d.) \frac{3x+1}{5} < \frac{2x-1}{3}$$

$$\frac{9x+3}{15} < \frac{10x-5}{15} \quad | \cdot \frac{15}{1}$$

$$9x+3 < 10x-5 \quad | -10x-3$$

$$-x < -8 \quad | \cdot (-1)$$

$$\underline{x > 8}$$



$$S:] 8; +\infty[$$

$$S = \{x \mid x > 8\}$$