

Section 2.3

$$2. 6 - 4x \leq 22 \Rightarrow -4x \leq 16 \Rightarrow x \geq 4$$

$$6. \left(\frac{x-1}{4} - \frac{2x+3}{5} \leq x \right) 20 \Rightarrow 5(x-1) - 4(2x+3) \leq 20x$$

$$\Rightarrow 5x - 5 - 8x - 12 \leq 20x \Rightarrow -3x - 17 \leq 20x \Rightarrow -17 \leq 23x$$

$$\Rightarrow x \geq -\frac{17}{23}$$

$$8. -3 \leq 2x+1 \leq 5 \Rightarrow -4 \leq 2x \leq 4 \Rightarrow -2 \leq x \leq 2$$

$$10. \left(\frac{2}{3} \leq \frac{5-3t}{-2} \leq \frac{3}{4} \right) \Rightarrow -8 \geq -6(5-3t) \geq -9 \Rightarrow$$

$$-9 \leq -30 + 18t \leq -8 \Rightarrow \frac{21}{18} \leq t \leq \frac{32}{18} \Rightarrow \frac{7}{6} \leq t \leq \frac{16}{9}$$

$$18. A. |t| \geq 0 \Rightarrow t \geq 0 \text{ OR } t \leq 0 \text{ so } t \text{ is any real no.}$$

$$B. |t| \leq 0 \Rightarrow t = 0 \text{ is only solution}$$

$$22. A. 3x+5 < 17 \Rightarrow 3x < 12 \Rightarrow x < 4$$

$$B. |3x+5| < 17 \Rightarrow \begin{array}{l} 3x+5 < 17 \quad x < 4 \\ \text{OR} \\ 3x+5 > -17 \quad x > -\frac{22}{3} \end{array} \quad -\frac{22}{3} < x < 4$$

$$24. A. |x-a| + b < c \Rightarrow |x-a| < c-b \quad \begin{array}{l} x-a < c-b \quad x < c-b+a \\ x-a > -c+b \quad x > b-c+a \end{array}$$

$$B. |x+a| + b > c \quad \begin{array}{l} x+a > c-b \quad x > c-b-a \\ x+a < -c+b \quad x < b-c-a \end{array}$$

$$C. |x+a| + b < c \quad \begin{array}{l} x+a < c-b \quad x < c-b-a \\ x+a > -c+b \quad x > -c+b-a \end{array}$$

$$26. \left| \frac{4-5x}{2} \right| > 1 \quad \frac{4-5x}{2} > 1 \Rightarrow 4-5x > 2 \Rightarrow 2 > 5x$$

$$\text{OR } x < \frac{2}{5}$$

$$\frac{4-5x}{2} < -1 \Rightarrow 4-5x < -2 \Rightarrow 6 < 5x \text{ OR } x > \frac{6}{5}$$

$$32. 6 - 13x < 0 \quad 6 < 13x \quad x > \frac{6}{13}$$

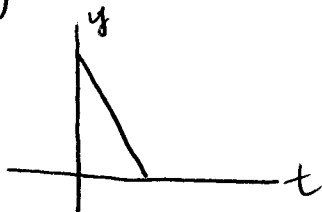
$$34. \quad 1 - |15x - 3| < 0 \Rightarrow |15x - 3| > 1$$

$$15x - 3 > 1 \Rightarrow 15x > 4 \Rightarrow x > 4/15$$

$$15x - 3 < -1 \Rightarrow 15x < 2 \Rightarrow x < 2/15$$

$$42. \quad y = -0.4743t + 24.086$$

A.



Slope is negative

$$B. \quad -0.4743t + 24.086 \leq 10$$

$$-0.4743t \leq -14.086$$

$$t \geq 29.699 \quad \text{so year near end of 2009.}$$