Find the LCD

24. $\dfrac{3}{x^2 - 25}$ and $\dfrac{x}{x^2 - 10x + 25}$

$(x+5)(x-5)$ $(x-5)(x-5)$

$LCD = (x+5)(x-5)(x-5)$

$$\frac{1}{8} + \frac{1}{6}$$

$$\frac{1}{2 \cdot 2 \cdot 2} + \frac{1}{2 \cdot 3}$$

$$\frac{\qquad}{2 \cdot 2 \cdot 2 \cdot 3}$$

$$\frac{2x}{2x}\cdot\frac{3}{6x^2} + \frac{1}{4x^3}\cdot\frac{3}{3}$$

$$2\cdot3\cdot x\cdot x \qquad 2\cdot2\cdot x\cdot x\cdot x$$

$$\frac{6x}{2\cdot3\cdot2x^3} + \frac{3}{2\cdot3\cdot2x^3}$$

$$\frac{6x+3}{12x^3} \rightarrow \frac{\cancel{3}(2x+1)}{\cancel{3}\cdot4x^3} \rightarrow \boxed{\frac{2x+1}{4x^3}}$$

39. $\dfrac{3y+7}{y^2-5y+6} - \dfrac{3}{y-3}$

~~$2y+9$ 2~~

$$\frac{3y+7}{(y-3)(y-2)} - \frac{3(y-2)}{y-3(y-2)}$$

$$\frac{3y+7}{(y-3)(y-2)} \;\; \overset{-}{+} \;\; \frac{3y+6}{(y-3)(y-2)}$$

$$\frac{13}{(y-3)(y-2)}$$

1. factor denom.
2. Find LCD
3. write new denominator
4. look back and see what factors are missing
5. Simplified numer.
6. add numerators
7. check to see if fraction simplifies

Add or subtract

$$\frac{x^2-6}{x^2+9x+18} - \frac{x-4}{x+6}$$

$$\frac{x^2-6}{(x+6)(x+3)} - \frac{(x-4)(x+3)}{x+6\ (x+3)}$$

$$\frac{x^2-6}{(x+6)(x+3)} + \frac{-x^2+x+12}{(x+6)(x+3)}$$

$$\frac{\cancel{(x+6)}1}{\cancel{(x+6)}(x+3)} \rightarrow \frac{1}{x+3}$$

$$\frac{x+4}{x^2-x-2} - \frac{2x+3}{x^2+2x-8}$$

$$\frac{(x+4)(x+4)}{(x+1)(x-2)(x+4)} - \frac{(2x+3)(x+1)}{(x+4)(x-2)(x+1)}$$

$$\frac{x^2+8x+16}{(x+1)(x-2)(x+4)} + \frac{-2x^2-5x-3}{(x+1)(x-2)(x+4)}$$

$$\boxed{\frac{-x^2+3x+13}{(x+1)(x-2)(x+4)}}$$

$$\frac{2x+1}{x^2-7x+6} - \frac{x+3}{x^2-5x-6}$$

$$\frac{(2x+1)(x+1)}{(x-6)(x-1)(x+1)} - \frac{(x+3)(x-1)}{(x-6)(x+1)(x-1)}$$

$$\frac{2x^2+3x+1}{(x-6)(x-1)(x+1)} + \frac{-x^2-2x+3}{(x-6)(x-1)(x+1)}$$

$$\boxed{\frac{x^2+x+4}{(x-6)(x-1)(x+1)}}$$

$$\frac{9x}{x^2-y^2} - \frac{10}{y-x}\frac{(-1)}{(-1)}$$

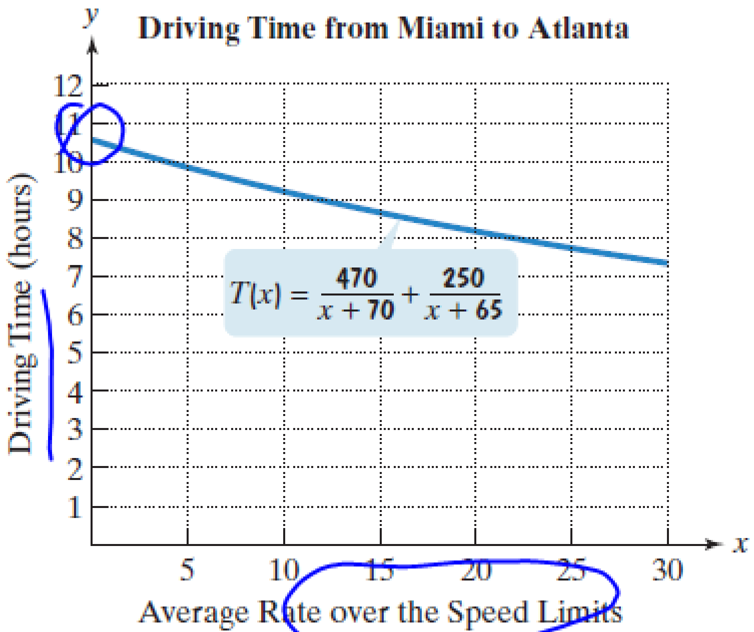
$$\frac{9x}{(x+y)(x-y)} + \frac{\cancel{-}10}{(x-y)}\frac{(x+y)}{(x+y)}$$

$$\frac{9x+10x+10y}{(x+y)(x-y)} \Rightarrow \frac{19x+10y}{(x+y)(x-y)}$$

$$\frac{y-7}{y^2-16} - \frac{(\cancel{7}-\cancel{y})(-1)}{(16-y^2)(-1)}$$

$$\frac{y-7}{y^2-16} + \frac{-y+7}{y^2-16} \rightarrow \frac{0}{y^2-16} = 0$$

he graph of T is shown in the figure. Use the function's equation o solve Exercises 77–82.



X

T(x)

$$T(0) = \frac{470}{70} + \frac{250}{65}$$

7. Find and interpret $T(0)$. Round to the nearest hour. Identify your solution as a point on the graph.

$T(0) = 10.\overline{6}$

Going the speed limit, it would take ~ 10.6 hrs

$$\frac{y^2}{y^2-9} + \frac{9-6y}{y^2-9} = \frac{y^2-6y+9}{y^2-9}$$

$$= \frac{\cancel{(y-3)}^{1}(y-3)}{\cancel{(y-3)}_{1}(y+3)}$$

$$= \frac{y-3}{y+3}$$