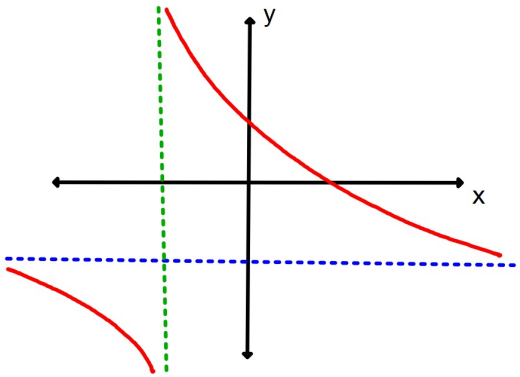
Graph this equation. Show asymptotes as dashed lines. State the equations of the asymptotes.

$y = \frac{52}{x+4} - 5$ 5 down, 4 left

pos → "Quadrants" I & III

Big → Branches far away



Eq of HA: $y = -5$

Eq of VA: $x = -4$

Ibrahim can install the brick on a house in 8 hours. Diego can install the brick on the same house in 10 hours. One day these two masons arrive on a job together and begin working on the same kind of house. Diego has to leave early and ends up working half as long as Ibrahim. Find the exact total amount of time it takes to complete this house.

Ibrahim: $\frac{1 \text{ house}}{8 \text{ hrs}} \Rightarrow r = \frac{1}{8} \frac{\text{house}}{\text{hr}}$

time working = t

Diego: $\frac{1 \text{ house}}{10 \text{ hrs}} \Rightarrow r = \frac{1}{10} \frac{\text{house}}{\text{hr}}$

time working = $\frac{t}{2}$

$Q = rt$

$Q = 1$ house

$1 = \frac{1}{8}t + \frac{1}{10} \cdot \frac{t}{2}$

$40 \cdot 1 = \left(\frac{t}{8} + \frac{t}{20}\right)40$

$40 = 5t + 2t$

$\frac{40}{7} = \frac{7t}{7}$

$t = \frac{40}{7}$ hrs

Solve. $\frac{x+3}{x^2-6x-16} + \frac{x-14}{x^2-4x-32} = \frac{x+1}{x^2+6x+8}$

$\frac{(x+4)}{(x+4)} \cdot \frac{x+3}{x^2-6x-16} + \frac{x-14}{x^2-4x-32} \cdot \frac{(x+2)}{(x+2)} = \frac{x+1}{x^2+6x+8} \cdot \frac{(x-8)}{(x-8)}$

$(x-8)(x+2) \quad (x-8)(x+4) \quad (x+4)(x+2)$

$(x+3)(x+4) + (x-14)(x+2) = (x+1)(x-8)$

$x^2+7x+12 + x^2-12x-28 = x^2-7x-8$

$x^2+2x-8 = 0$

$(x-2)(x+4) = 0$

$x = -4, 2 \Rightarrow x = 2$

-4 is extraneous