

1.  $6/5$  or 1.2 hours
2. Huck: 12 hours  
Fin: 24 hours

I used guess/check/generalize on this one:

Guess: Tom painted fence in 20 hours: Rate =  $1/20^{\text{th}}$  of fence per hour

So, Huck painted fence in 8 hours (20-12). Rate =  $1/8^{\text{th}}$  of fence per hour

So, together their rate is  $\frac{1}{20} + \frac{1}{8}$  th of the fence per hour. This equals  $\frac{7}{40}^{\text{th}}$  of the fence per hour.

Check: Since Tom & Huck painted the fence together in 8 hours. Their together rate is  $1/8^{\text{th}}$  of the fence per hour. But,  $7/40$  doesn't equal  $1/8$ .

Generalize: Let  $t$  be the time it took Tom to paint the fence alone.

Tom's Rate:  $\frac{1}{t}$  of the fence per hour

Huck's Rate  $\frac{1}{t-12}$  of the fence per hour.

Together Rate:  $\frac{1}{t} + \frac{1}{t-12}$  of the fence per hour.

But, together Huck and Tom's rate is  $1/8^{\text{th}}$  of the fence per hour. So, we have:

$$\frac{1}{t} + \frac{1}{t-12} = \frac{1}{8}$$

3. Hint: Use a time number line and split the two hours it takes to fill the pool into fourths.
4. Suggestion: Try to use guess/check/generalize
5. Answer: 9 days
6. Suggestion: Find the "emptying rate" and "filling rate" in tubs per minute and go from there.