

① "Simplify the expression below and write it as a percent."

- The problem is telling me to condense to which I should start by dealing with the terms inside the parenthesis.

$$\frac{1}{20} (18^{-1} + 24^{-1})^{-1}$$

- $x^{-1} = \frac{1}{x}$, this rule says the terms 18^{-1} and 24^{-1} can be converted to $\frac{1}{18}$ and $\frac{1}{24}$.

$$\begin{aligned} \frac{1}{20} \left(\frac{1}{18} + \frac{1}{24} \right)^{-1} \\ \frac{1}{20} \left(\frac{4}{72} + \frac{3}{72} \right)^{-1} \\ \frac{1}{20} \left(\frac{7}{72} \right)^{-1} \end{aligned}$$

- in order to add fractions the denominators need to be the same which in this case the denominator is 72.

- what's left is $\frac{1}{20} \left(\frac{7}{72} \right)^{-1}$ and the negative exponent attached to $\frac{7}{72}$ changes the fraction to $\frac{72}{7}$.

$$\begin{aligned} \frac{1}{20} \left(\frac{72}{7} \right) \\ \frac{1}{20} \cdot \frac{72}{7} \\ \frac{18}{35} \end{aligned}$$

- By multiplying both fractions I am left with $\frac{18}{35}$ which is as simplified as it can get. so i can begin turning $\frac{18}{35}$ into a percent

- in order to become a percent the fraction must be solved and then multiplied by 100%

$$\begin{aligned} \frac{18}{35} \cdot 100\% \\ 18 \div 35 = .51429 \\ .51429 \cdot 100 = 51.429\% \end{aligned}$$

$$\frac{18}{35} \times 100\% = 51.429\%$$

51.429%

* my mistake was multiplying $\frac{72}{140}$ by $\frac{1}{100}$. I also skipped a step when simplifying $\frac{1}{20} (18^{-1} + 24^{-1})^{-1}$. I stopped at $\frac{72}{140}$ when it can be simplified again to $\frac{18}{35}$. The key component here is turning the simplified expression to a percent which means for every 100 to see how much we get for one group of 100. dividing the fraction by 100 is the exact opposite of that.

③ "Multiply out and simplify. writing the simplified answer in the box"

- The problem is telling me to factor out a from $(5a - 3ab)$ and $2b$ from $(2ba - 52b)$ and then reduce the fractions.

$$\left(\frac{5a - 3ab}{2a} \right) \left(\frac{2ba - 52b}{13} \right)$$

$$\frac{a(5 - 3b)}{2a} \times \frac{2b(a - 2b)}{13}$$

$$\frac{5 - 3b}{12} \times \frac{2b(a - 2b)}{13}$$

$$5 - 3b \times \frac{13(a - 2b)}{13}$$

- I now need to distribute the terms and because there are no like terms the expression is now fully simplified.

$$(5 - 3b)(a - 2b)$$

$$5a - 10b - 3ab + 6b^2$$

* My mistake was overcomplicating the problem. I ~~immediately~~ immediately distributed the terms when there were factors that could be taken out from each set. By redoing this problem the simpler and correct way, I learned that I should carefully do problems as such and carefully cancel out common factors.

④ The problem is asking if car A leaves at 12:00 am going 60 mph and car B leaves at 1:20 am going 100 mph. At what time does car B catch up to car A.

- car A takes x hours

$$\text{CAR A} = 60 \text{ mph} \quad \text{CAR B} = 100 \text{ mph}$$

- car B takes 1 hour and 20 mins later than car A

$$\text{car A} = 60x$$

$$\text{car B} = (x - 4/3)$$

$$\text{car B} = 100(x - 4/3)$$

- Set the distance traveled by both cars equal to one another and solve for x

$$100(x - 4/3) = 60x$$

$$100x - 400/3 = 60x$$

$$40x = 400/3$$

$$x = \frac{400/3}{40} = \frac{10}{3}$$

$$x = 10/3$$

- now that the distance traveled by car A is known plug it in $(x - 4/3)$ for car B.

$$\text{car B} = (10/3 - 4/3)$$

$$(6/3)$$

2 hours

- car B travels 2 hours later than 12:00 am

12:00 am plus 2 hours

which is 2:00 am.

is

2:00 am

the time the car catches up to car A.

My mistake was taking too long on the other problems that I wasn't able to finish question 4.