

Feb 11 HW

P94 (7H)

$$h) \frac{4-ab}{9ab} + \frac{2ab}{6a^2b^2}$$

$$CD = 36a^2b^2 \quad \text{Restriction } a \neq 0, b \neq 0$$

$$= \frac{4ab(4-ab) + 6(2ab)}{36a^2b^2} = \frac{16ab - 4a^2b^2 + 12ab}{36a^2b^2}$$

$$= \frac{-4a^2b^2 + 28ab}{36a^2b^2} = \frac{-4ab(ab-7)}{36a^2b^2}$$

$$= \frac{-(ab-7)}{9ab}, \quad a \neq 0, b \neq 0$$

$$7D) \frac{7}{6x} + \frac{3}{8x} =$$

$$* 6x = (2) \cdot 3 \cdot (x)$$

$$* CD = 2x \cdot 3 \cdot 2 \cdot 2 = 24x, x \neq 0$$

$$* 8x = (2) \cdot 2 \cdot 2 \cdot (x)$$

$$= \frac{(4 \times 7) + (3 \times 3)}{24x} = \frac{28 + 9}{24x}$$

$$= \frac{37}{24x}, \quad x \neq 0$$

P94

$$7B) \frac{x^5}{x+10} - \frac{x^4}{2x-1}$$

$$\Rightarrow CD = 60 \quad \begin{array}{l} 12 = 3 \times 2 \times 2 \\ 15 = 3 \times 5 \end{array} \Rightarrow CD = 3 \times 5 \times 2 \times 2 = 60$$

* Restriction: None

$$\begin{aligned} &= \frac{5(x+10) - 4(2x-1)}{60} = \frac{5x+50-8x+4}{60} \\ &= \frac{-3x+54}{60} = \frac{-3(x-18)}{60} \\ &= \frac{-x+18}{20} \end{aligned}$$

$$7G) \frac{2+a}{a^2b} + \frac{4-a}{3ab^2}$$

* $CD = 3a^2b^2$, $a \neq 0$, $b \neq 0$

* First fraction = $3a^2b^2 \div a^2b = 3b$

* Second fraction = $3a^2b^2 \div 3ab^2 = a$

$$= \frac{3b(2+a) + a(4-a)}{3a^2b^2}$$

$$= \frac{6b + 3ab + 4a - a^2}{3a^2b^2}$$

, $a \neq 0$, $b \neq 0$

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7F) $\frac{13}{10a^2b} + \frac{11}{4b^2}$

* $10a^2b = 5 \cdot (2) \cdot a^2 \cdot (b)$

* $4b^2 = 2 \cdot (2) \cdot (b^2)$

= $\frac{\quad}{20a^2b^2}$

= $\frac{26b + 55a^2}{20a^2b^2}, a \neq 0, b \neq 0$

* $CO = 2b \cdot 5 \cdot a^2 \cdot b \cdot 2$
 $= 20a^2b^2, a \neq 0, b \neq 0$

* First Fraction = $20a^2b^2 \div 10a^2b$
 $= 2b$

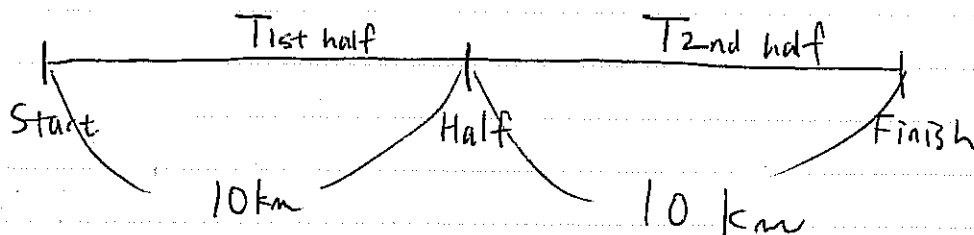
* Second Fraction = $20a^2b^2 \div 4b^2$
 $= 5a^2$

10. x = speed in first half

y = total time needed for the race

Total Distance = 20 km

Distance = Speed \times time So $T = \frac{\text{Distance}}{\text{Speed}}$



Time = $\frac{\text{Distance}}{\text{Speed}}$ So $T_1 = \frac{10}{x}$ $T_2 = \frac{10}{x-2}$

Total Time = $T_1 + T_2 = \frac{10}{x} + \frac{10}{x-2}$
 $= \frac{10(x-2) + 10x}{x(x-2)} = \frac{20x-20}{x(x-2)}, x > 2$

(10b) If $x = 10 \text{ km/h}$

$$T = \frac{20x - 20}{x(x-2)} = \frac{20 \cdot (10) - 20}{10(10-2)} = \frac{180}{80}$$
$$= \frac{18}{8} = \frac{9}{4} = 2.25 \text{ hours}$$

* Do not worry about #11, 12, 13. They are optional questions for students, who want to enter Math Competition.