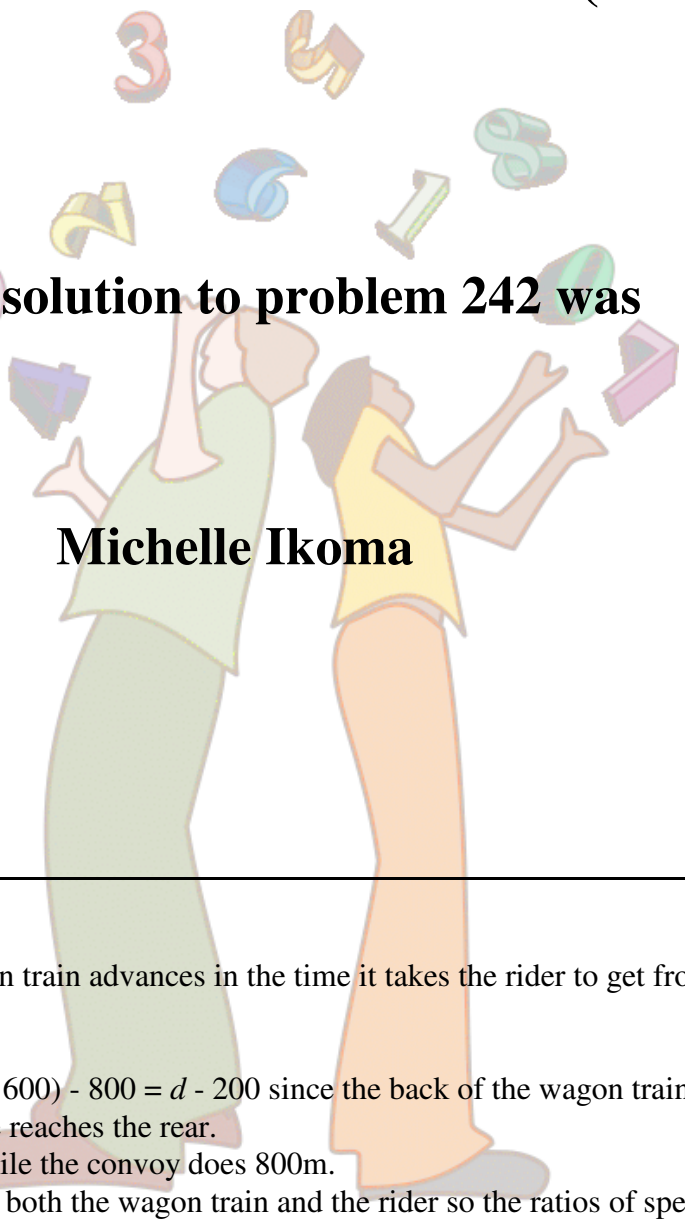
Kwantlen Polytechnic University

Mathematics Problem of the Week (242)



The only correct solution to problem 242 was submitted by:

Michelle Ikoma

Problem 242 solution:

Let d be the distance the wagon train advances in the time it takes the rider to get from the rear to the front.
Then he has ridden $d + 600$m.
Riding back he only goes $(d + 600) - 800 = d - 200$ since the back of the wagon train has advanced 800m by the time he reaches the rear.
Thus he travels $2d + 400$m while the convoy does 800m.
We assume constant speed for both the wagon train and the rider so the ratios of speeds (and so the distances covered) remain unchanged: $\frac{2d+400}{800} = \frac{d+600}{d}$.

Solving this yields $2d^2 - 400d - 480000 = 0$ so $d = 600$.
Thus the rider has travelled $2 \cdot 600 + 400 = 1600$ m.