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Problem M

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|                                     |                             |
|-------------------------------------|-----------------------------|
| $((o\ f\ g)\ x) == (f\ (g\ x))$     | {apply-compose law}         |
| $((curry\ f)\ x)\ y == (f\ x\ y)$   | {apply-curried law}         |
| $(f\ (g\ x)) == ((o\ f\ g)\ x)$     | {reverse-apply-compose law} |
| $(f\ x\ y) == (((curry\ f)\ x)\ y)$ | {reverse-apply-curried law} |

|  |                             |
|--|-----------------------------|
| $(o\ ((curry\ map)\ f)\ ((curry\ map)\ g))$        |                             |
| $\quad = (((curry\ map)\ f)\ (((curry\ map)\ g)))$ | {apply-compose-law}         |
| $\quad = ((curry\ map)\ f\ (map\ g))$              | {apply-curried-law}         |
| $\quad = (map\ f\ (map\ g))$                       | {apply-curried-law}         |
| $\quad = ((curry\ map)\ (f(g)))$                   | {reverse-apply-curried-law} |
| $\quad = ((curry\ map)\ (o\ f\ g))$                | {reverse-apply-compose-law} |

Therefore  $(o\ ((curry\ map)\ f)\ ((curry\ map)\ g)) == ((curry\ map)\ (o\ f\ g))$