# Supplementary Materials of Alexandrov Puzzle 

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Figure 1: glueing mechanism at foldings made by magnet or velclo.

Table 1: The order and the time of discovering solutions by ten subjects. The symbol " $M$ " in maths background indicates that the person is a master-course mathematics student. Some people could not find all five solutions within 30 minutes.

| subject | maths background | type | time |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | M | $Q_{0} T_{0}^{m} P_{0} O_{0}$ | $\begin{gathered} \hline \hline \mathrm{C} \\ \text { under } 1 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \hline \mathrm{Q} \\ 3 \mathrm{~m} 30 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \hline 0 \mathrm{O} \\ 7 \mathrm{~m} 5 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \hline \hline \mathrm{T} \\ 19 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \hline \hline \mathrm{P} \\ 21 \mathrm{~m} 50 \mathrm{~s} \end{gathered}$ |
| 2 | M | $Q_{0} T_{0}^{m} P_{0} O_{0}$ | $\begin{gathered} \mathrm{C} \\ \text { under } 1 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \mathrm{O} \\ 3 \mathrm{~m} 17 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{P} \\ 3 \mathrm{~m} 50 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{Q} \\ 14 \mathrm{~m} 50 \mathrm{~s} \end{gathered}$ | - |
| 3 | M | $Q_{0} T_{0}^{m} P_{0} O_{0}$ | $\begin{gathered} \mathrm{C} \\ \text { under } 1 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \mathrm{T} \\ 13 \mathrm{~m} 16 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{P} \\ 15 \mathrm{~m} 15 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{Q} \\ 21 \mathrm{~m} 20 \mathrm{~s} \end{gathered}$ | - |
| 4 | M | $Q_{0} T_{0}^{m} P_{0} O_{0}$ | $\begin{gathered} \mathrm{C} \\ \text { under } 1 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \mathrm{Q} \\ 7 \mathrm{~m} 20 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{T} \\ 14 \mathrm{~m} 24 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{O} \\ 20 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \mathrm{P} \\ 27 \mathrm{~m} \end{gathered}$ |
| 5 |  | $Q_{0} T_{0}^{m} P_{0} O_{0}$ | $\begin{gathered} \mathrm{C} \\ \text { under } 1 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \mathrm{Q} \\ 15 \mathrm{~m} 23 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{T} \\ 19 \mathrm{~m} 10 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{O} \\ 24 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \mathrm{P} \\ 28 \mathrm{~m} 35 \mathrm{~s} \end{gathered}$ |
| 6 | M | $Q_{0} T_{0}^{m} P_{1}^{m} O_{1}$ | $\begin{gathered} \mathrm{C} \\ \text { under } 1 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \mathrm{P} \\ 5 \mathrm{~m} 25 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{T} \\ 21 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \mathrm{Q} \\ 25 \mathrm{~m} 46 \mathrm{~s} \end{gathered}$ | - |
| 7 | M | $Q_{0} T_{0}^{m} P_{1}^{m} O_{1}$ | $\begin{gathered} \mathrm{C} \\ \text { under } 1 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \mathrm{P} \\ 4 \mathrm{~m} 22 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{T} \\ 20 \mathrm{~m} 20 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{O} \\ 28 \mathrm{~m} \end{gathered}$ | - |
| 8 | M | $Q_{0} T_{0}^{m} P_{1}^{m} O_{1}$ | C under 1 m | $\begin{gathered} \mathrm{O} \\ 2 \mathrm{~m} 20 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{P} \\ 3 \mathrm{~m} 30 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{Q} \\ 6 \mathrm{~m} 50 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \hline \mathrm{T} \\ 11 \mathrm{~m} \end{gathered}$ |
| 9 | M | $Q_{0} T_{0}^{m} P_{1}^{m} O_{1}$ | $\begin{gathered} \mathrm{C} \\ \text { under } 1 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \mathrm{T} \\ 7 \mathrm{~m} 42 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{O} \\ \text { over } 30 \mathrm{~m} \end{gathered}$ | - | - |
| 10 |  | $Q_{0} T_{0}^{m} P_{1}^{m} O_{1}$ | $\begin{gathered} \mathrm{C} \\ \text { under } 1 \mathrm{~m} \end{gathered}$ | $\begin{gathered} \hline \mathrm{O} \\ 3 \mathrm{~m} 6 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{P} \\ 5 \mathrm{~m} 6 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \mathrm{Q} \\ 15 \mathrm{~m} 22 \mathrm{~s} \end{gathered}$ | $\begin{gathered} \hline \mathrm{T} \\ 19 \mathrm{~m} 20 \mathrm{~s} \end{gathered}$ |

