

Papercraft Klein Quartic

Notes

Print the eight pages on card.

Cut out the 24 pieces.

Score and fold the internal lines, forming a triangulation of each heptagon. All pieces of the same shape are folded the same way. Ridge folds are ones that fold away from the printed side. Valley folds fold towards the printed side.

To explore the 3D shape you are making, visit:

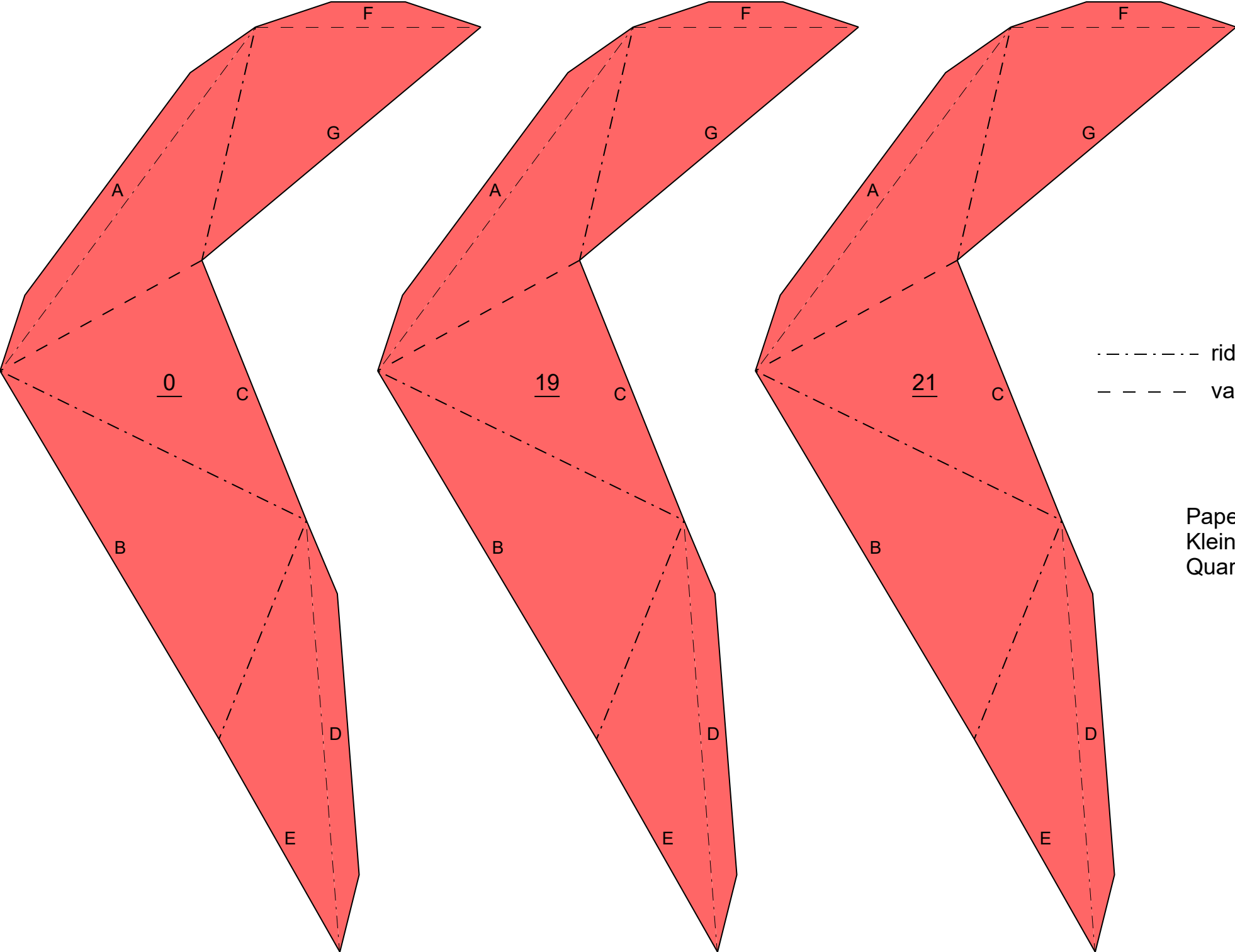
<https://github.com/timhutton/klein-quartic>

and run:

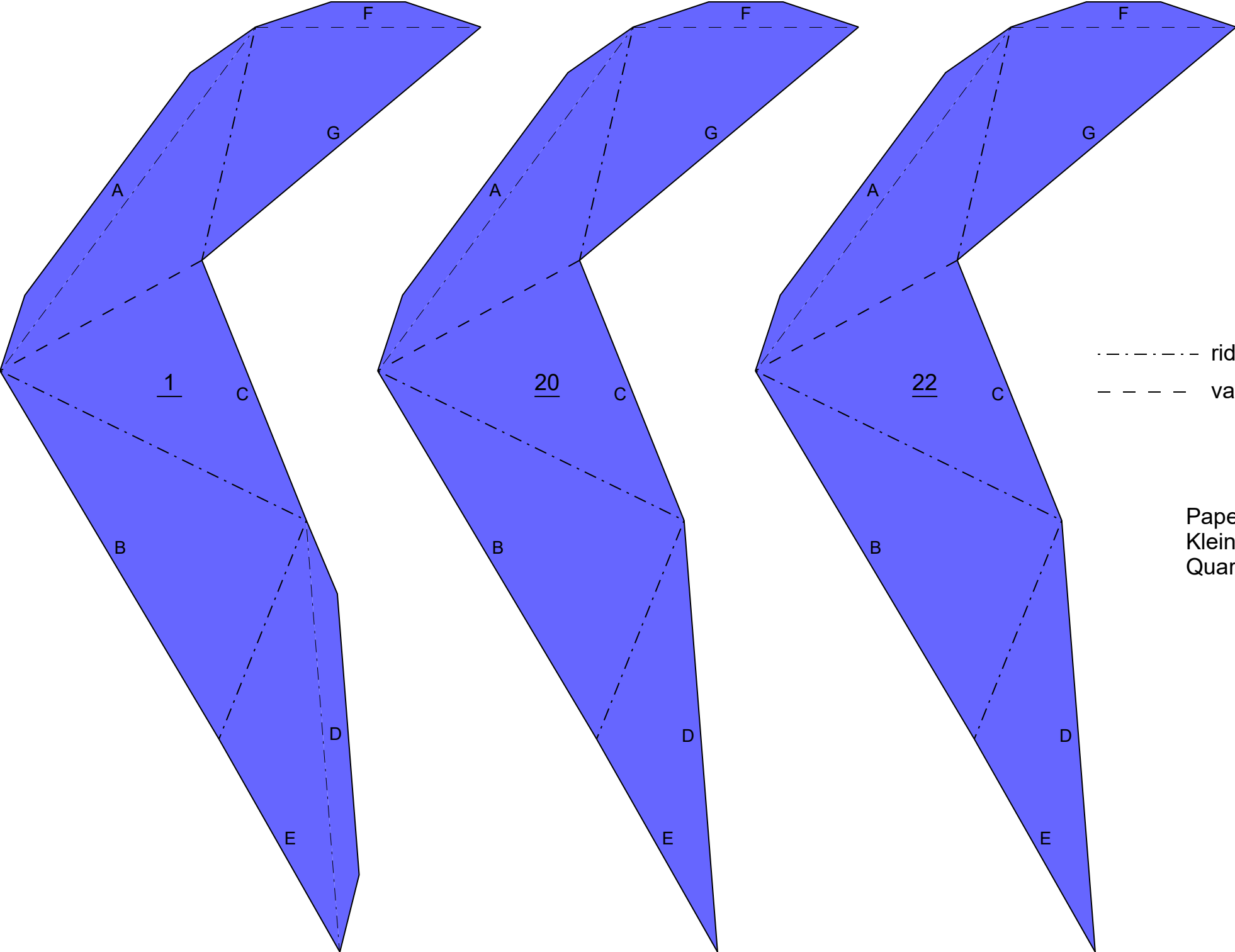
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python kq.py
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Instructions

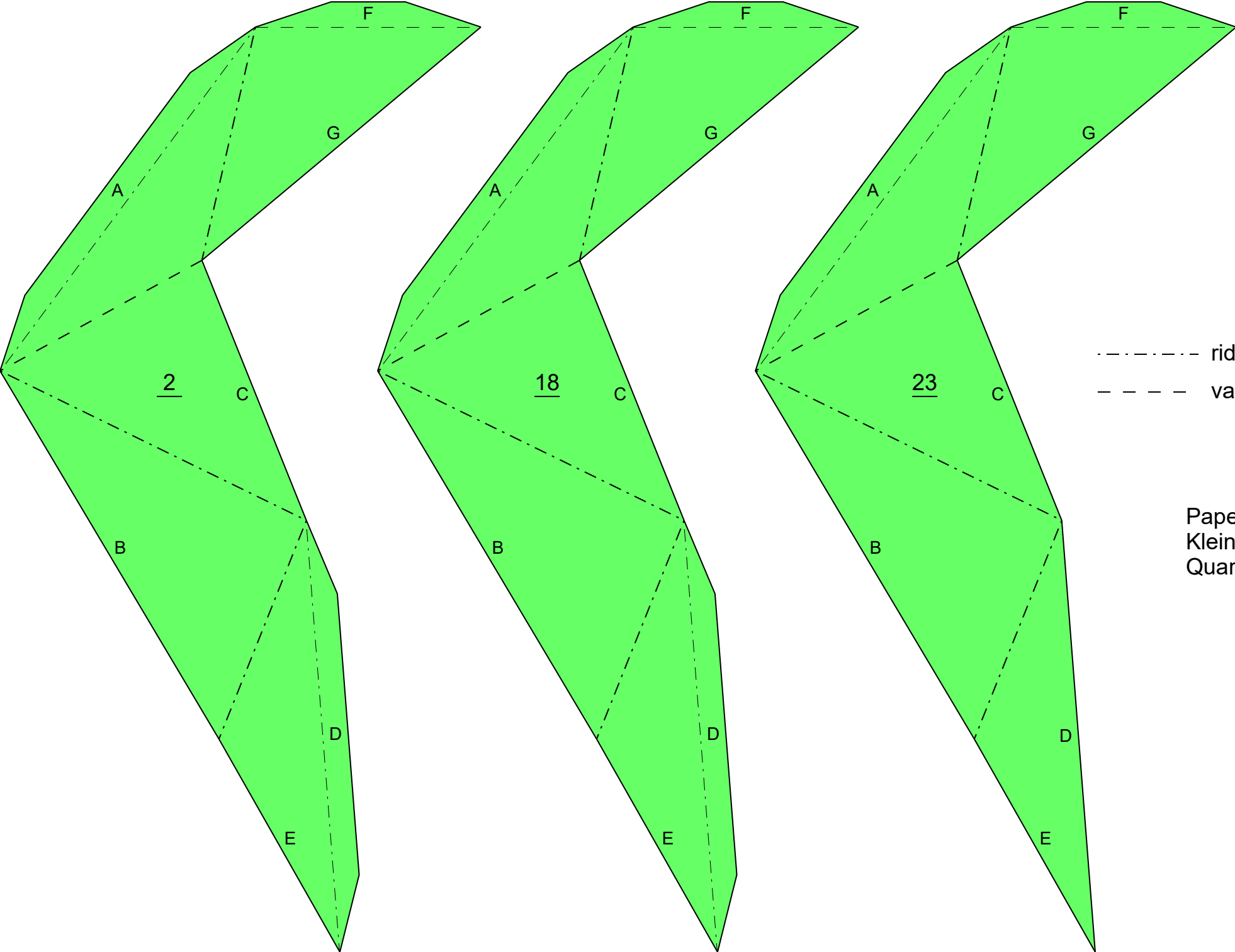
1. Join the outer heptagons into pairs: 0D-8D, 1D-6D, 2D-7D, 18D-22D, 20D-21D, 19D-23D.
2. Join the inner heptagons into pairs: 11H-13H, 10H-12H, 9H-14H, 3H-15H, 5H-17H, 4H-16H.
3. Then join the two pieces 1-6 and 11-13 in the following sequence: 1C-13C, 13E-6E, 1G-11G.
4. Find piece 19-23 and join: 11C-23C, 13G-23G, 19E-11E.
5. Find piece 10-12 and join: 12A-13B, 23F-12F.
6. Find piece 0-8 and join: 8E-12E, 8B-23A, 0B-1A.
7. Find piece 3-15 and join: 3F-1F, 3E-0E, 8C-3C, 3A-11B, 8G-15G, 0C-12C, 10G-0G.
8. Find piece 5-17 and join: 17B-11A, 3B-17A, 5A-10B, 5F-0F.
9. Find piece 2-7 and join: 7F-11F, 7G-17G, 7A-19B, 7C-5C.
10. Find piece 9-14 and join: 14B-13A, 14A-12B.
11. Find piece 18-22 and join: 22F-14F, 22G-12G.
12. Find piece 20-21 and join: 13F-21F, 14G-21G, 22A-7B, 2E-5E, 7E-14E, 2B-0A, 14C-2C, 2A-1B, 9G-2G.
13. Finally find piece 4-16 and join: 4F-2F, 4E-1E, 9A-15B, 9F-8F, 4A-9B, 4B-15A, 16A-5B, 16B-10A, 21A-6B, 6C-4C, 16E-23E, 21C-9C, 20E-9E, 20B-8A, 20A-23B, 17C-20C, 20G-5G, 20F-16F, 16C-19C, 19G-4G, 19F-15F, 6G-16G, 6F-10F, 22C-10C, 22B-19A, 22E-15E, 18E-10E, 18B-6A, 18C-15C, 21B-18A, 18G-3G, 18F-17F, 21E-17E.



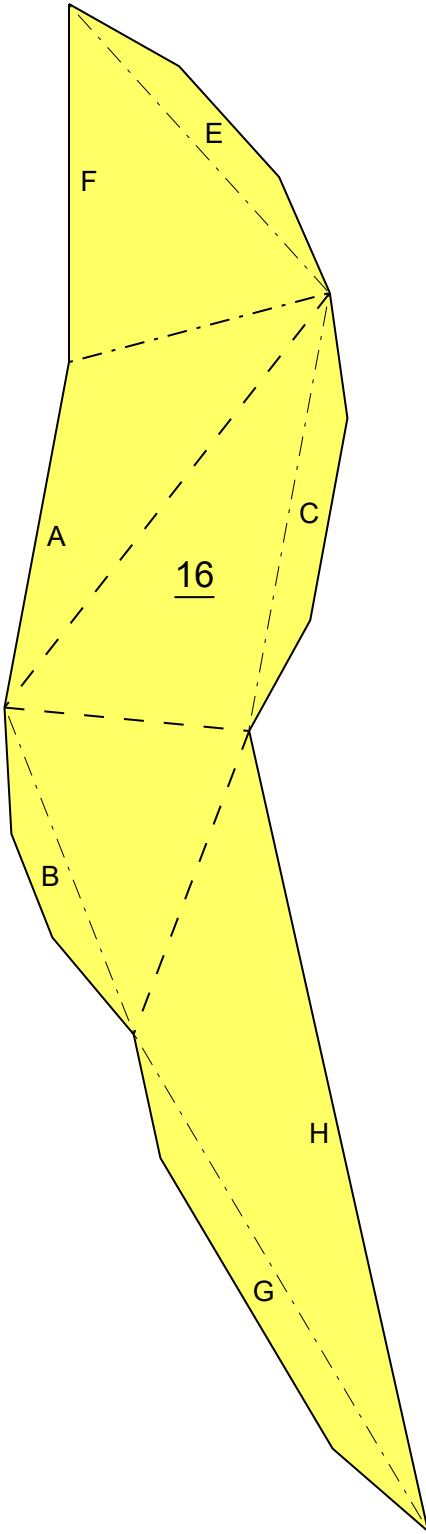
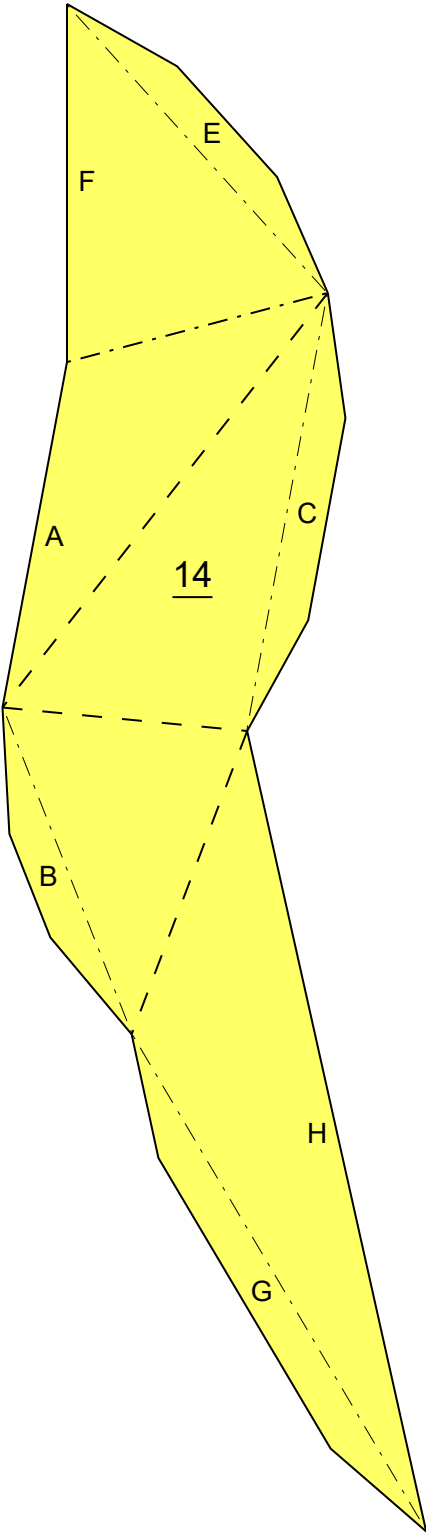
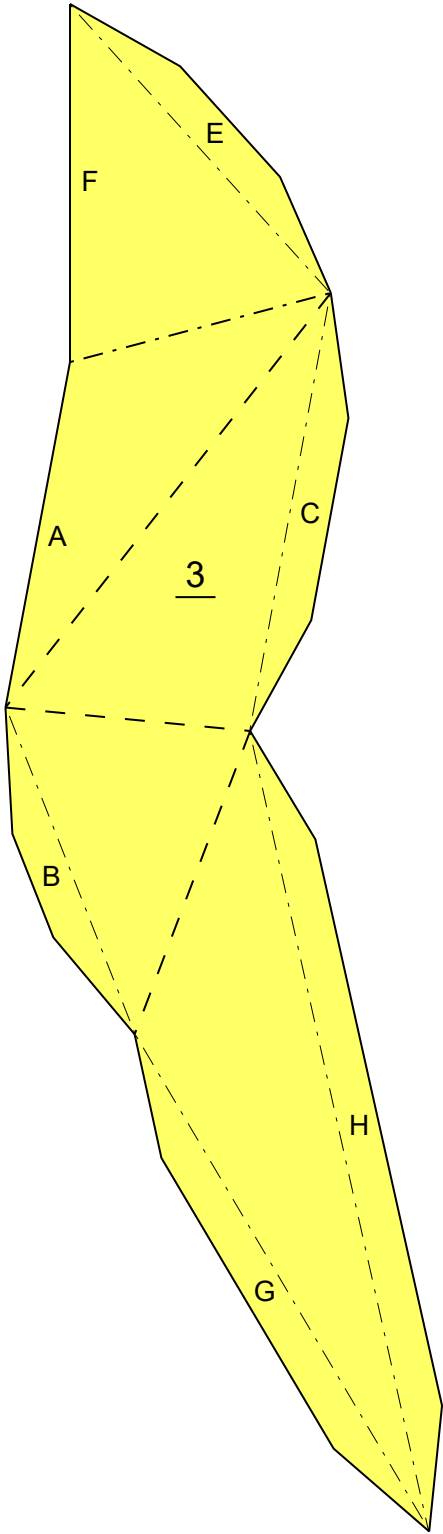
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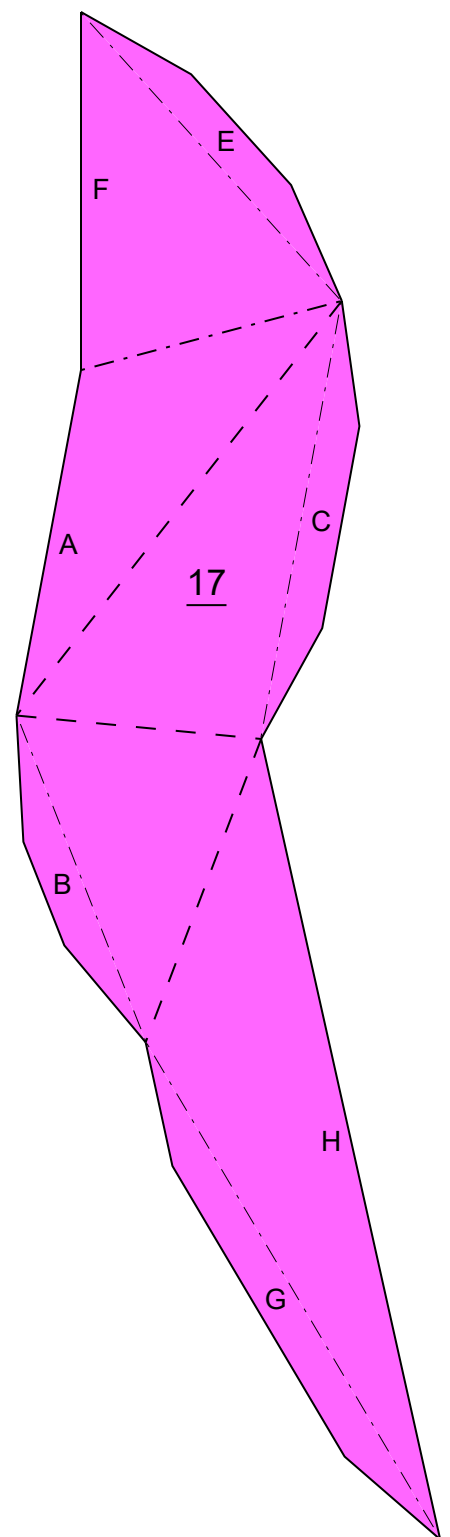
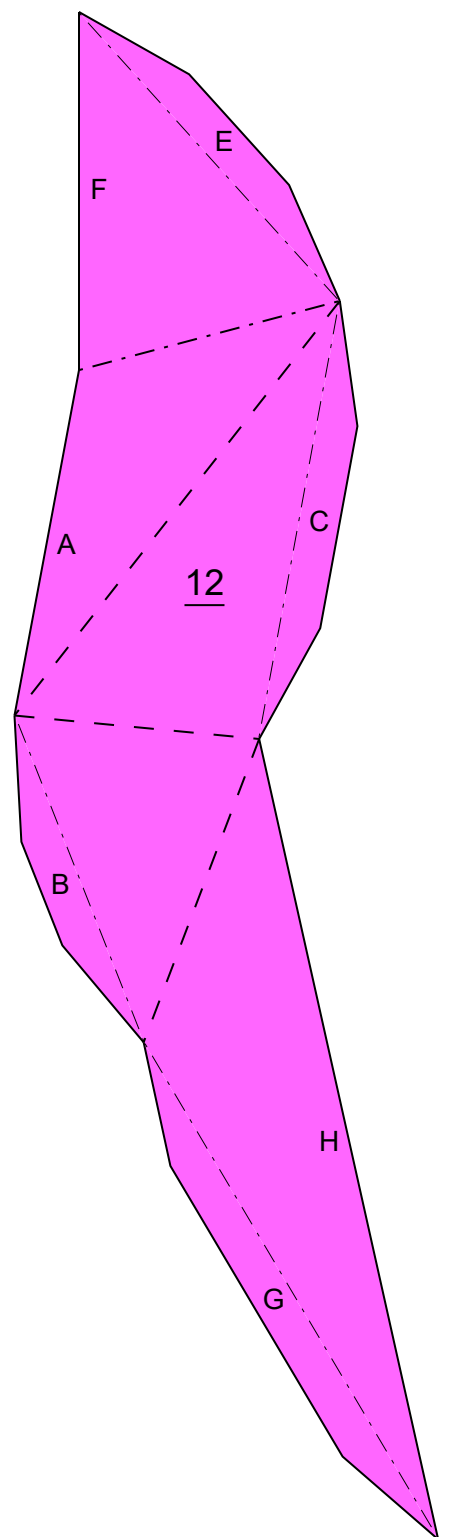
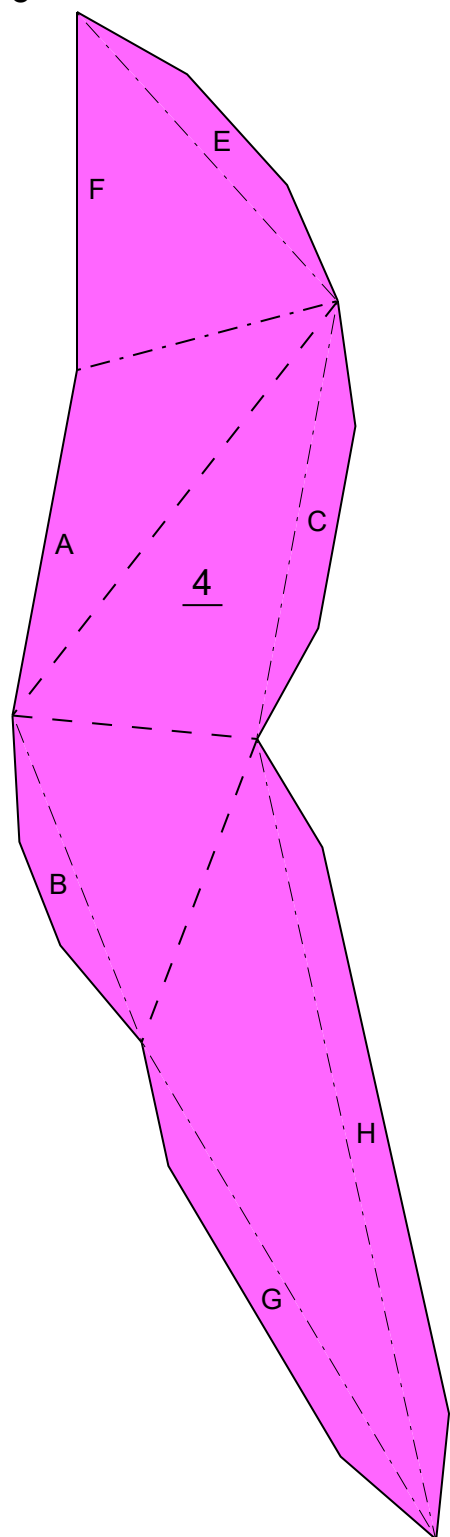


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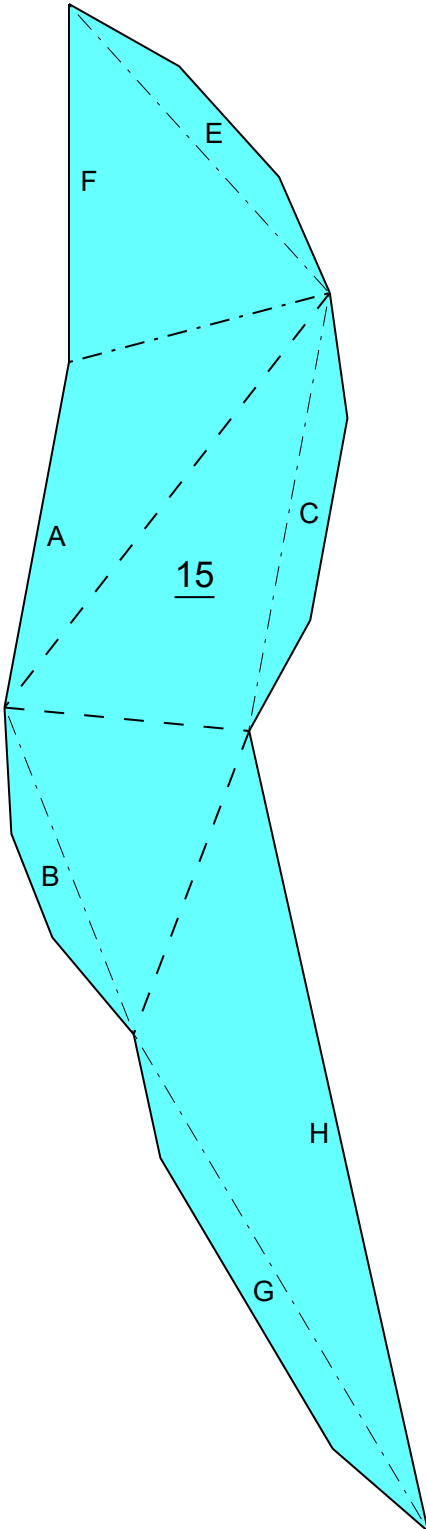
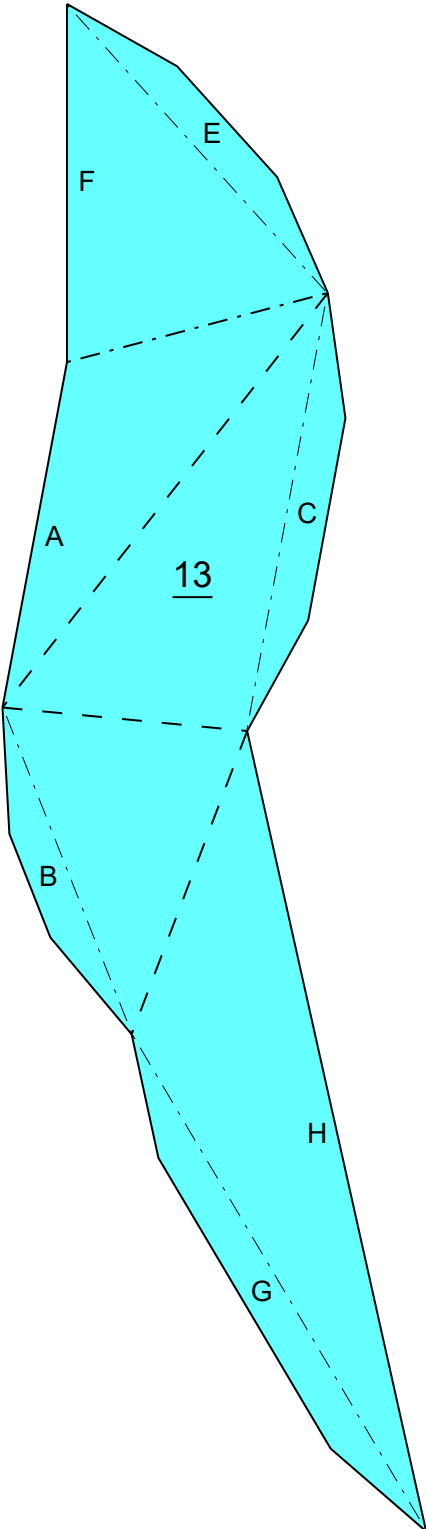
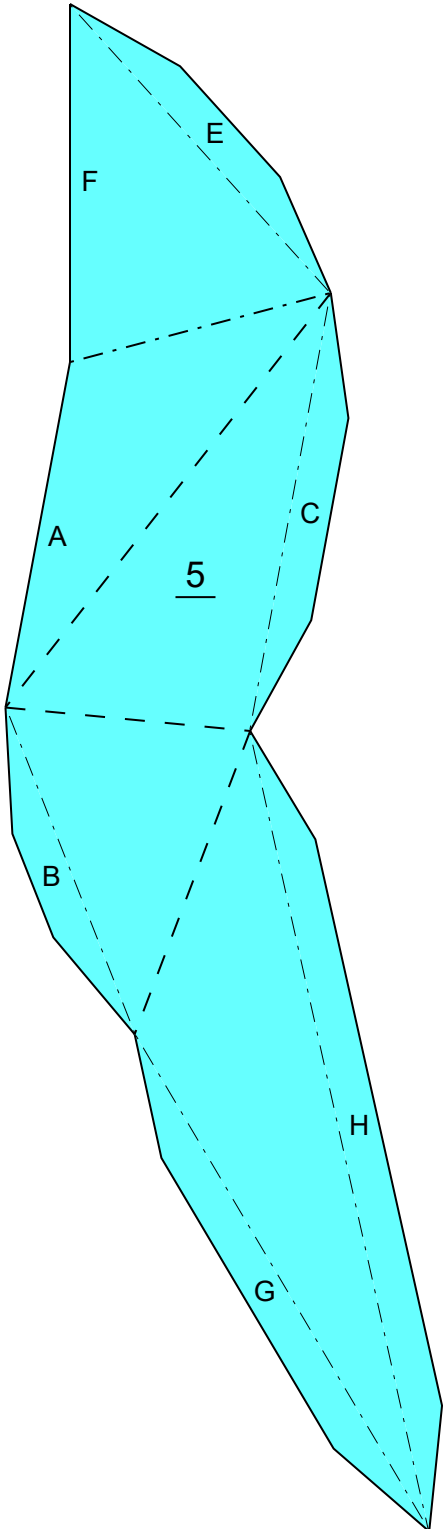
..... ridge fold
- - - - - valley fold

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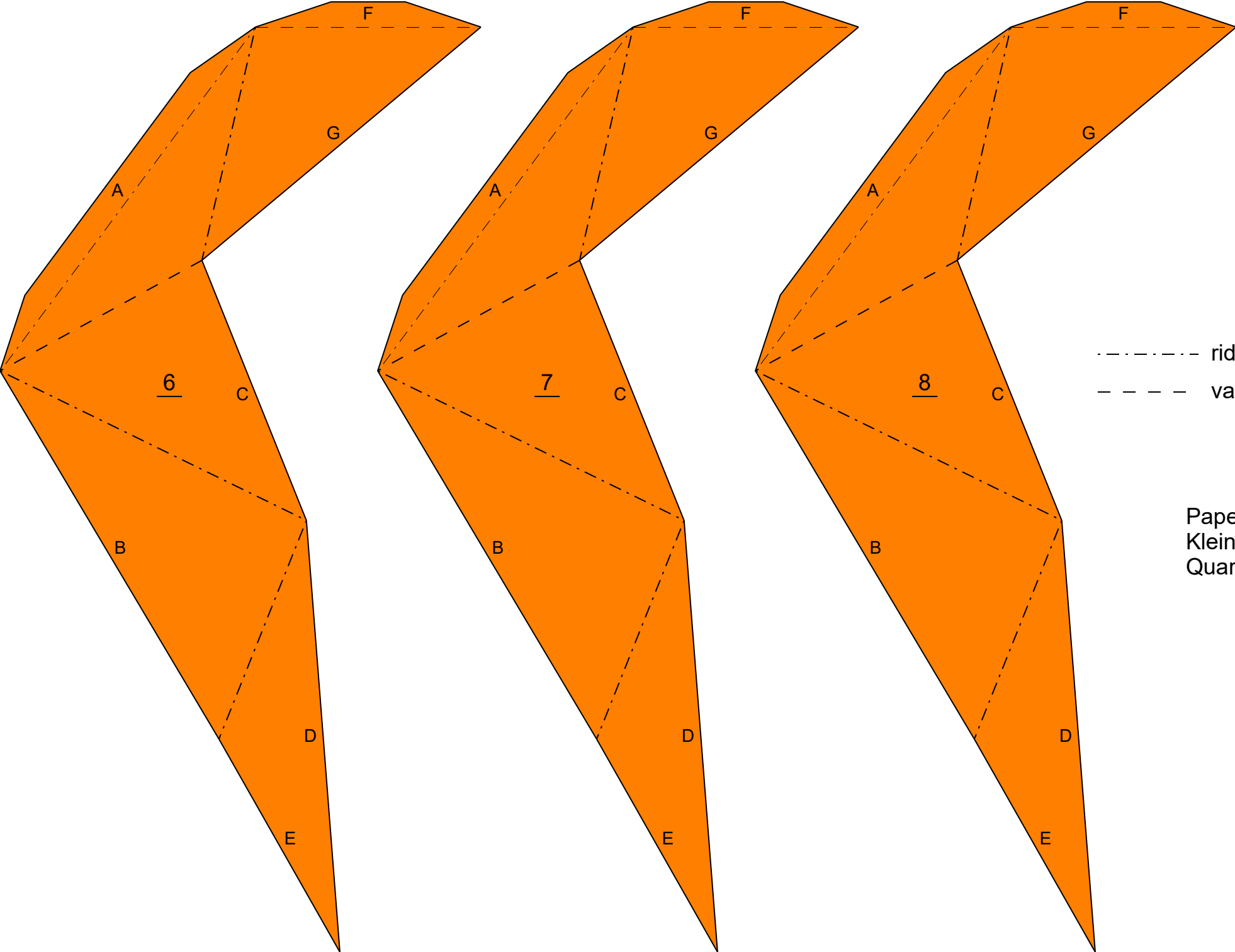
..... ridge fold
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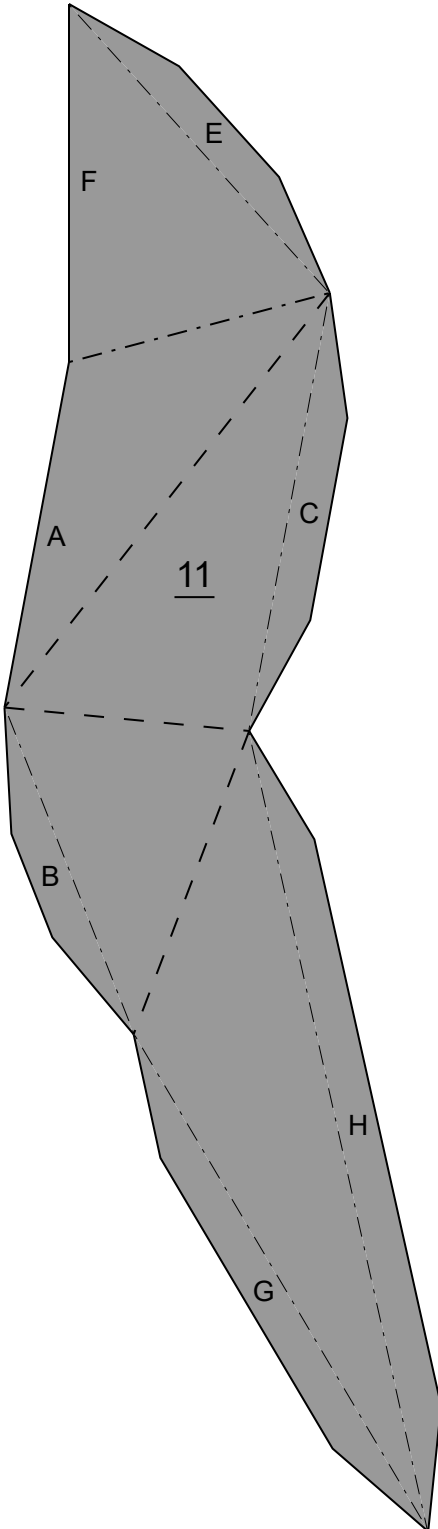
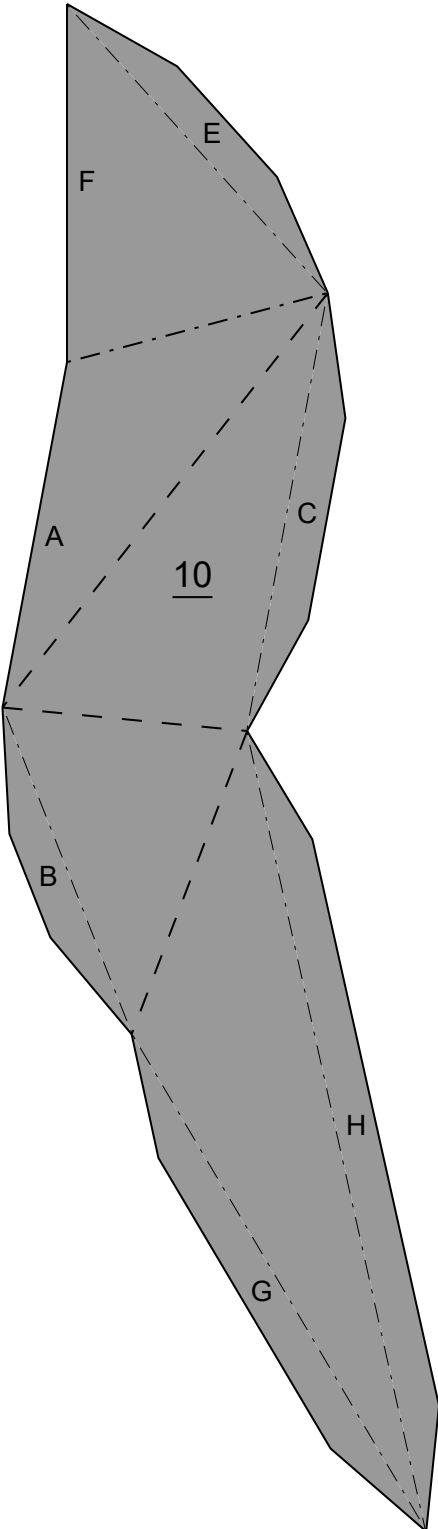
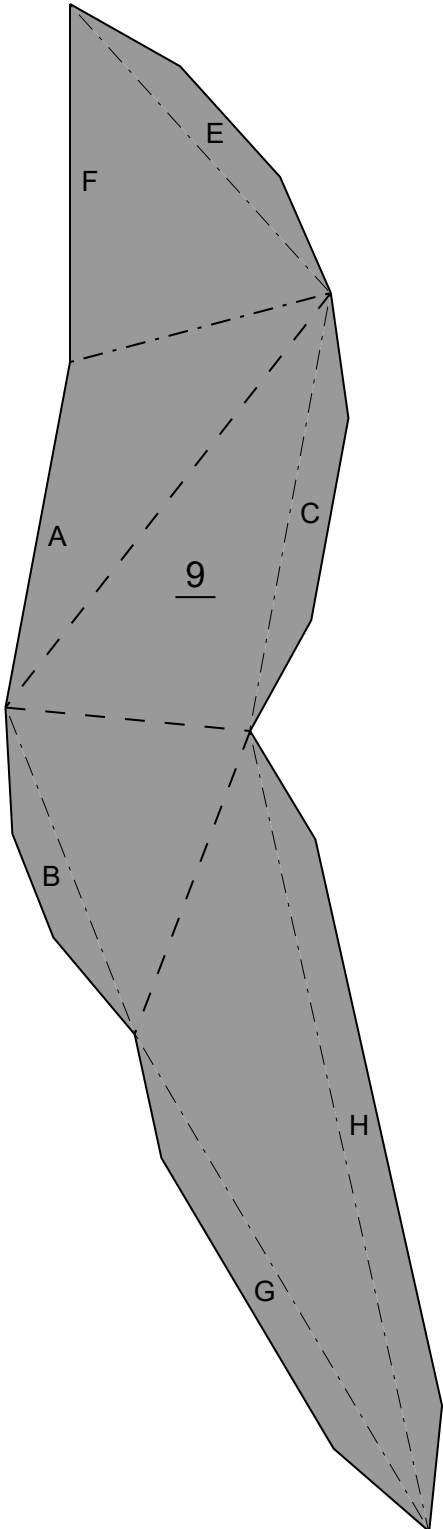


..... ridge fold
- - - - valley fold

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