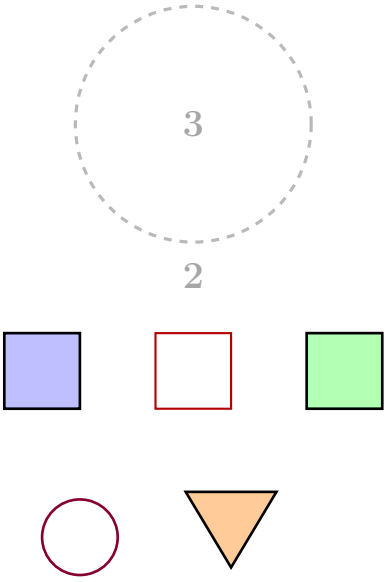
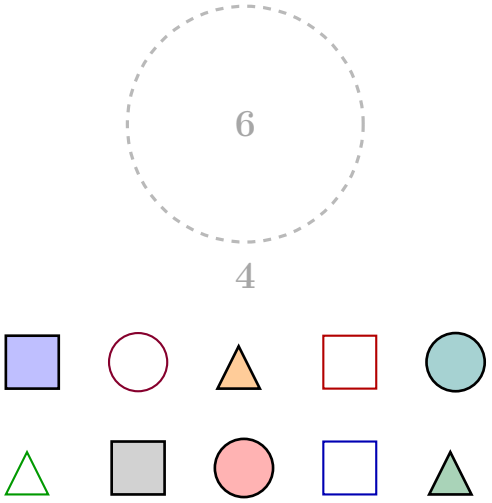
Spot the Rule: Venn Challenges

Mr. Merrick · October 7, 2025

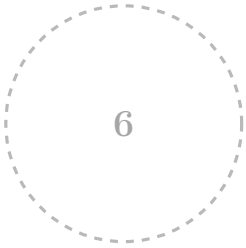
1. Below are 5 shapes. The dashed circle shows how many satisfy a *single hidden rule*. Deduce the rule from the diagram.

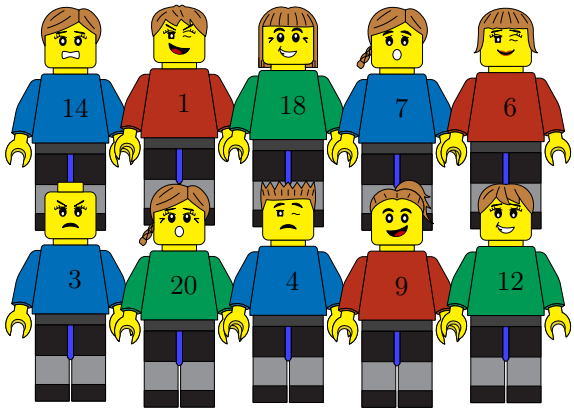


2. Below are 10 shapes. The dashed circle shows how many satisfy a *single hidden rule*. Deduce the rule from the diagram.

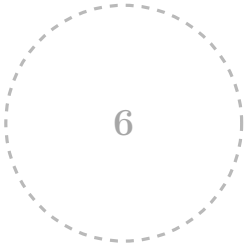


3. Below are 10 LEGO minifigures. The dashed circle shows how many figures satisfy a *single hidden rule*. Figure out the rule.

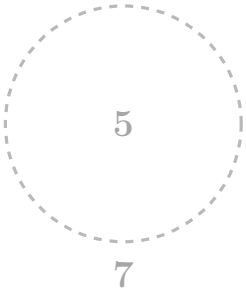


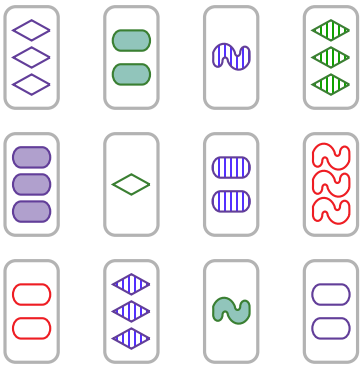


4. Below are 10 polygons. The dashed circle shows how many satisfy a *single hidden rule*. Figure out the rule.

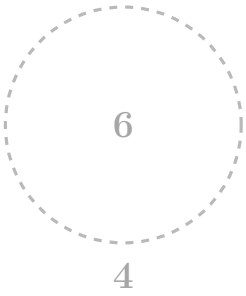


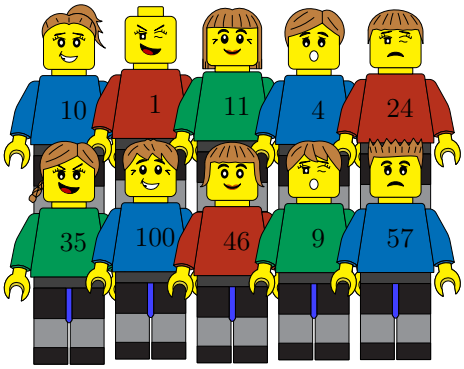
5. **One circle (Set).** Below are 12 Set cards. The dashed circle shows how many cards satisfy a *single hidden rule*. Figure out the rule. **Bonus:** find all *sets*.





6. Below are 10 LEGO minifigures. The dashed circle shows how many figures satisfy a *single hidden rule*. Figure out the rule.





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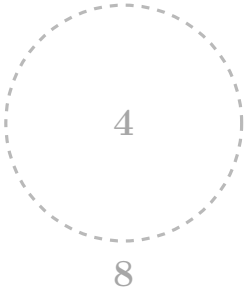
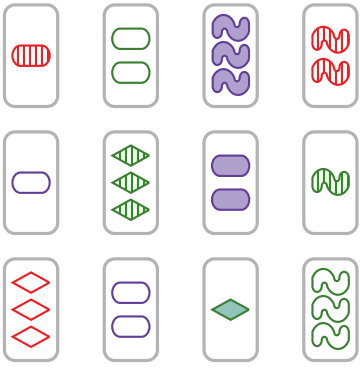
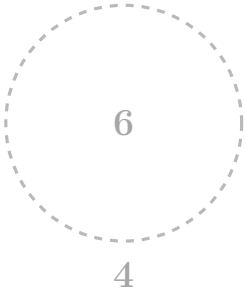
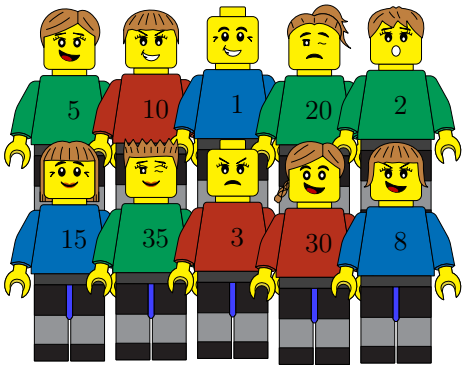


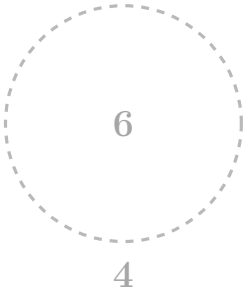


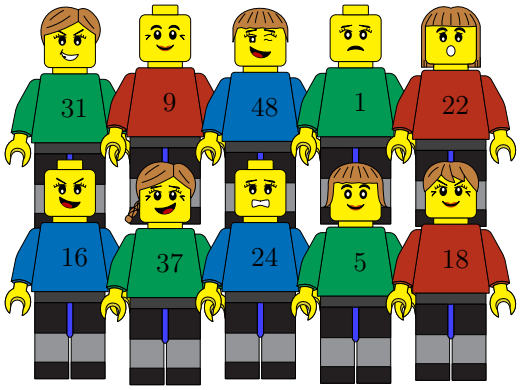
8. Below are 10 LEGO minifigures. The dashed circle shows how many figures satisfy a *single hidden rule*. Figure out the rule.



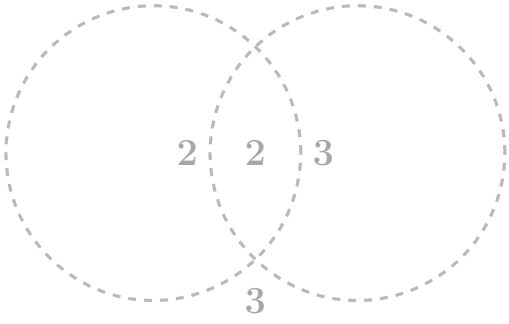


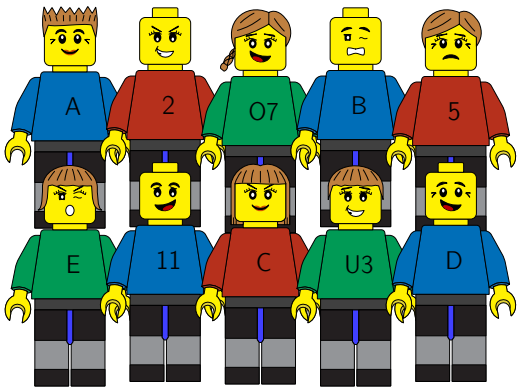
9. Below are 10 LEGO minifigures. The dashed circle shows how many figures satisfy a *single hidden rule*. Figure out the rule.



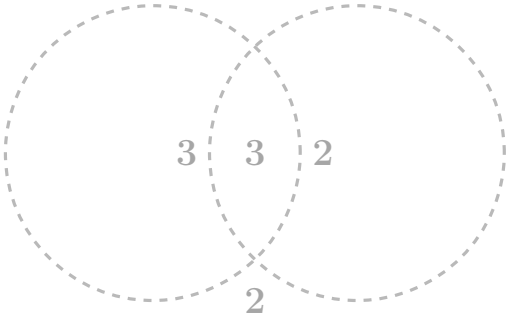


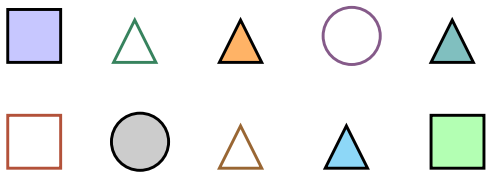
10. Below are 10 LEGO minifigures. The dashed circles show how many figures satisfy *two hidden rules*. Figure out the rules.





11. Below are 10 shapes. The dashed circles show how many fit *each of two hidden rules*. Do not move any—just figure out both rules.





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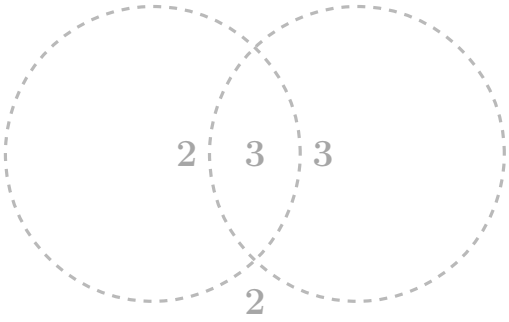

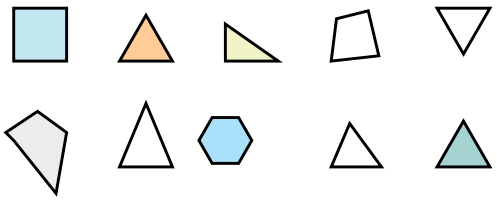

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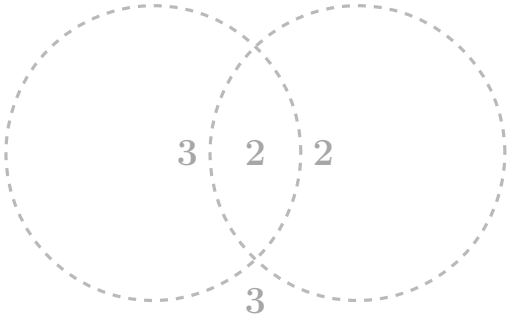

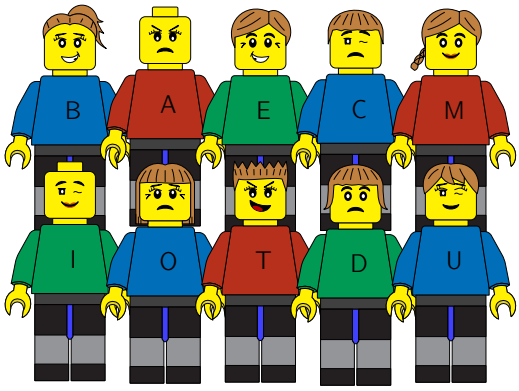

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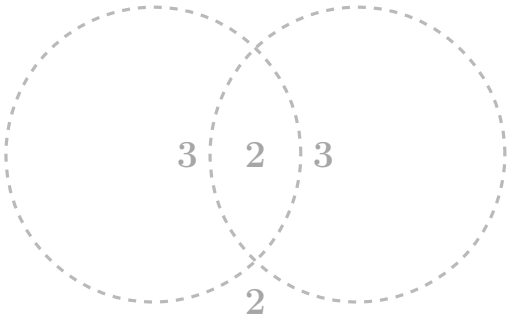
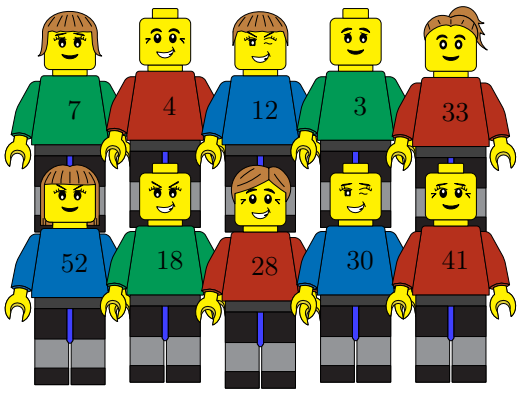
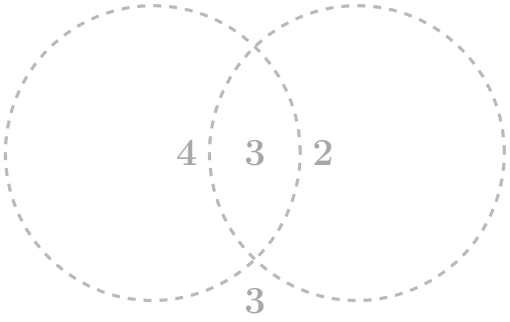
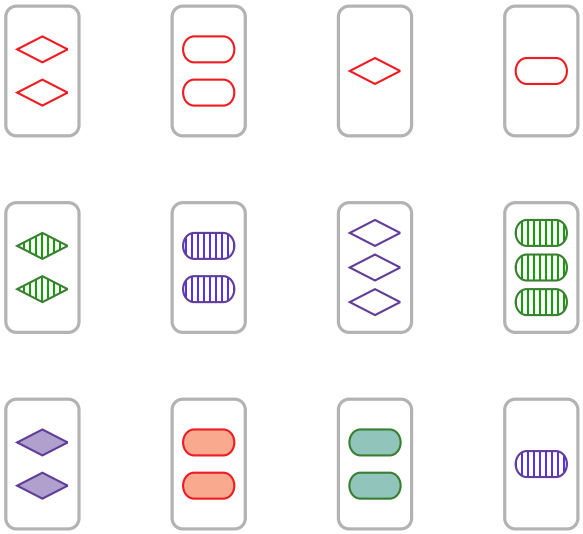


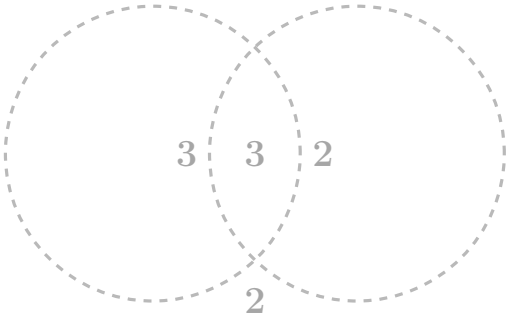


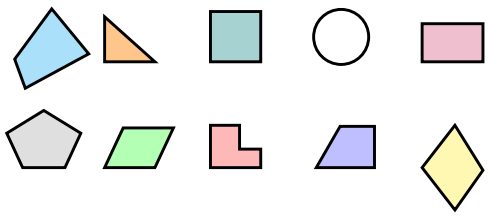
15. Below are 12 Set cards. The dashed circles show how many cards fit *each of two hidden rules*. Figure out both rules. **Bonus:** find all *sets*.





16. Below are 10 shapes. The dashed circles show how many fit *each of two hidden rules*. Do not move any—just figure out both rules.





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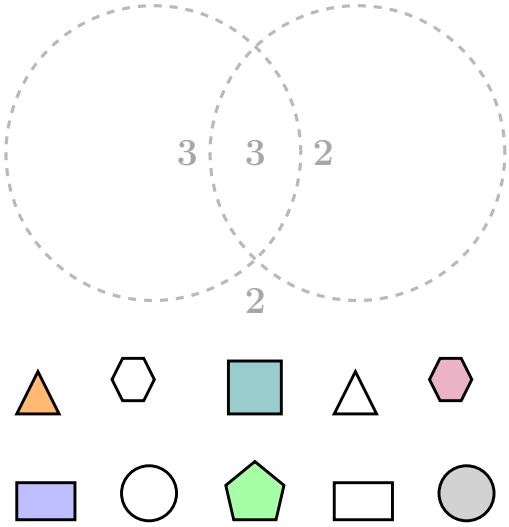
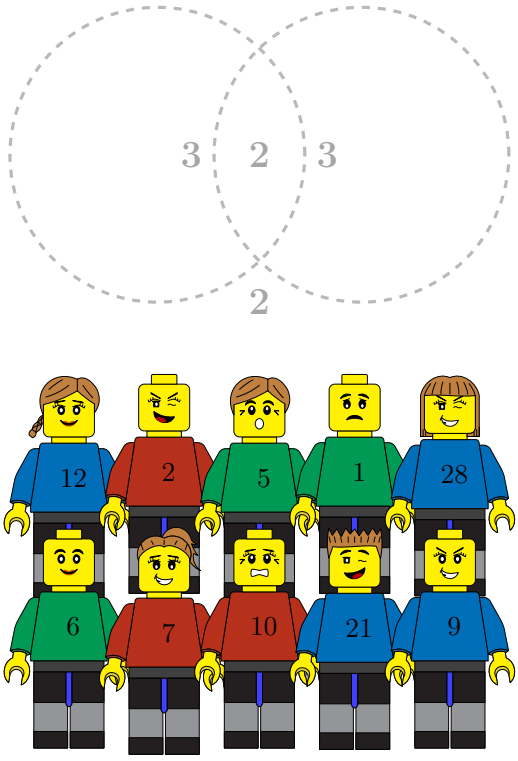
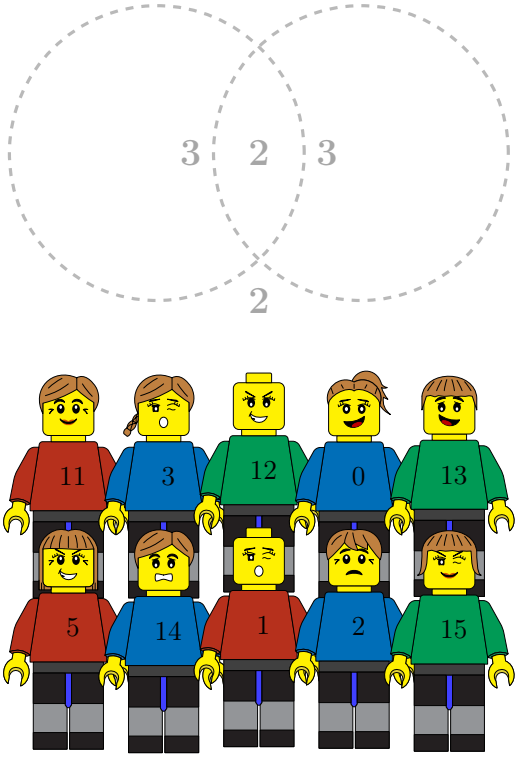


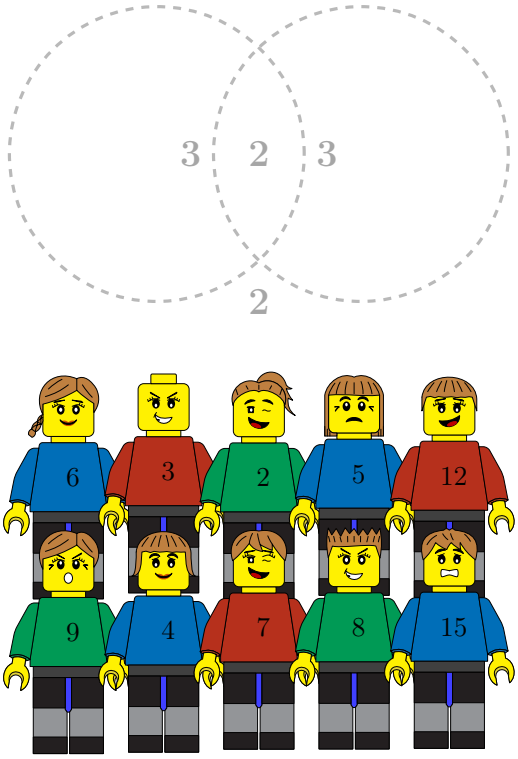
18. Below are 10 LEGO minifigures. The dashed circles show how many figures satisfy *two hidden rules*. Figure out the rules.



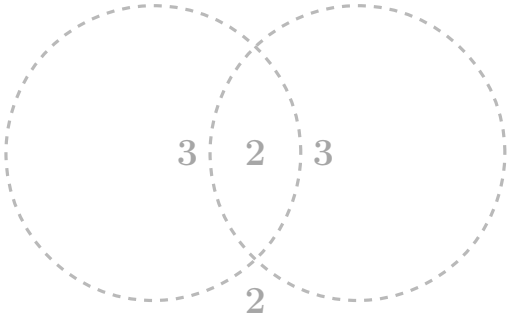
19. Below are 10 LEGO minifigures. The dashed circles show how many figures satisfy *two hidden rules*. Figure out the rules.

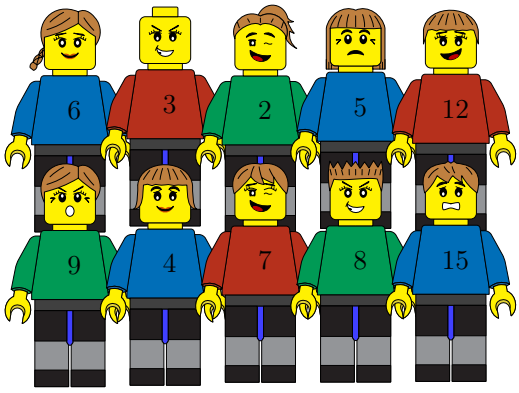


20. Below are 10 LEGO minifigures. The dashed circles show how many figures satisfy *two hidden rules*. Figure out the rules.

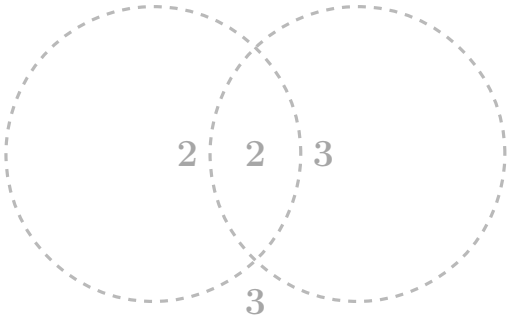


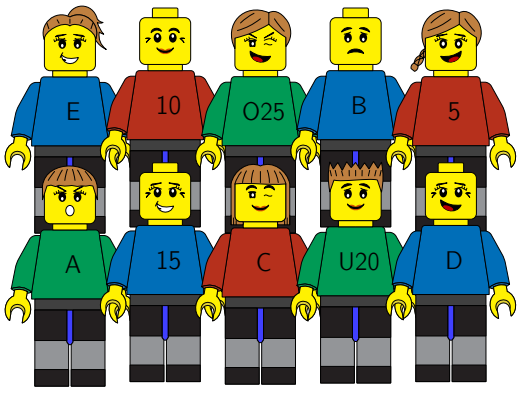
21. Below are 10 LEGO minifigures. The dashed circles show how many figures satisfy *two hidden rules*. Figure out the rules.



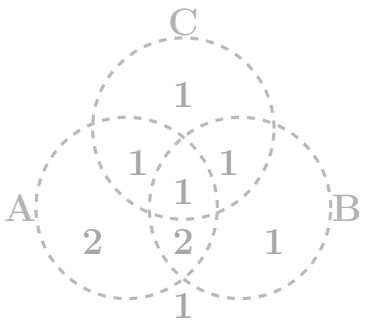


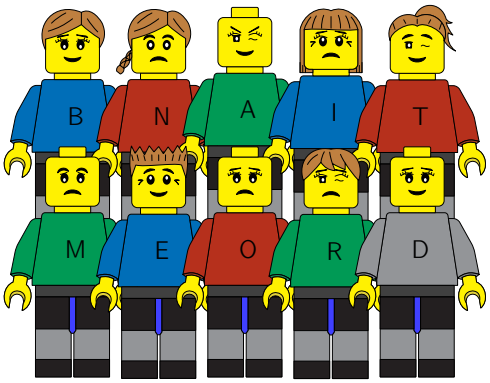
22. Below are 10 LEGO minifigures. The dashed circles show how many figures satisfy *two hidden rules*. Figure out the rules.



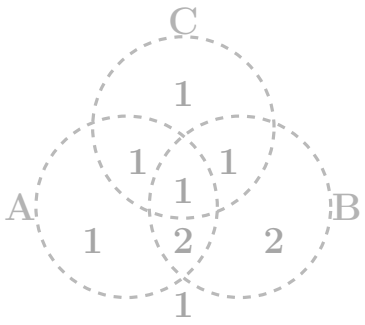


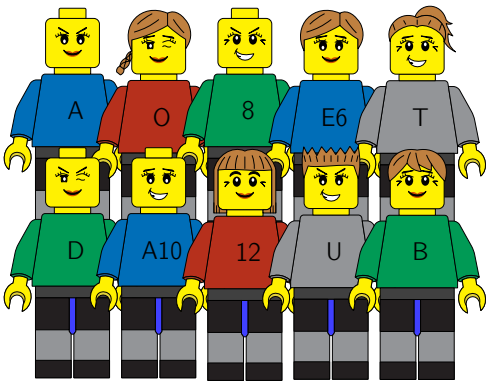
23. Below are 10 LEGO minifigures. The dashed circles show how many figures satisfy *three hidden rules*. Figure out the rules.





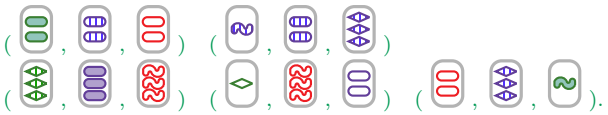
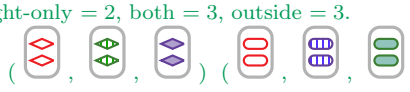
24. Below are 10 LEGO minifigures. The dashed circles show how many figures satisfy *three hidden rules*. Figure out the rules.





Solutions

Note: Many puzzles have multiple solutions

1. *Shape is a square.* (3 inside, 2 outside.)
2. *The shape is filled (not hollow).* (6 inside, 4 outside.)
3. *Shirt number is even.* (6 inside, 4 outside.)
4. *Polygon has an even number of sides* (4, 6, 8, 10, 12, . . .). (6 inside, 4 outside.)
5. Two possibilities fit these counts (5 inside): *number = 3* **or** *open (hollow) shading.*
   Bonus — all sets (5):
   
6. *Shirt number is two-digit (10–99).* (6 inside, 4 outside.)
7. Two known solutions: *Shading is striped* or *purple shapes.* (4 inside.)
   Bonus — all sets (3): 
8. *Shirt number is a multiple of 5.* (6 inside, 4 outside.)
9. *Has hair (not bald).* (6 inside, 4 outside.)
10. Left — *shirt includes a vowel (A, E, I, O, U)*; Right — *shirt includes a prime number (2, 3, 5, 7, 11).*
    Counts: left-only = 2, right-only = 3, both = 2, outside = 3.
11. Left — *shape is filled (shaded)*; Right — *shape is a triangle (3 sides).*
    Counts: left-only = 3, right-only = 2, both = 3, outside = 2.
12. Left — *regular polygon* (all sides/angles equal); Right — *triangle.*
    Counts: left-only = 2 (square, regular hexagon), right-only = 3 (non-equilateral triangles), both = 3 (equilateral triangles), outside = 2 (irregular polygons).
13. Left — *consonant letter*; Right — *sad face* (mouthstyle = 8).
    Counts: left-only = 3, right-only = 2, both = 2, outside = 3.
14. Left — *has hair*; Right — *happy face* (mouthstyle = 10).
    Counts: left-only = 3, right-only = 3, both = 2, outside = 2.
15. Left — *number of symbols is 2*; Right — *shape is diamond.*
    Counts: left-only = 4, right-only = 2, both = 3, outside = 3.
    Bonus — all sets (2): 
16. Left — *quadrilateral* (4 straight sides); Right — *has at least one right angle.*
    Counts: left-only = 3, right-only = 2, both = 3, outside = 2.
17. Left — *filled (shaded)*; Right — *even-sided polygon.*
    Counts: left-only = 3, right-only = 2, both = 3, outside = 2.
18. Left — *even number*; Right — *has hair (not bald).*
    Counts: left-only = 3, right-only = 3, both = 2, outside = 2.
19. Left — *prime*; Right — *two-digit (10–99).*
    Counts: left-only = 3, right-only = 3, both = 2, outside = 2.
20. Left — *even*; Right — *multiple of 3.*
    Counts: left-only = 3, right-only = 3, both = 2, outside = 2.
21. Left — *even*; Right — *multiple of 3.*
    Counts: left-only = 3, right-only = 3, both = 2, outside = 2.
22. Left — *includes a vowel*; Right — *includes a multiple of 5.*
    Counts: left-only = 2, right-only = 3, both = 2, outside = 3.
23. **(Three circles)** A — *has hair*; B — *happy face* (mouthstyle = 10); C — *vowel letter.*
    Counts: A-only = 2, B-only = 1, C-only = 1, A∩B = 2, A∩C = 1, B∩C = 1, A∩B∩C = 1, Outside = 1.
24. **(Three circles)** A — *vowel letter*; B — *has hair*; C — *even number.*
    Counts: A-only = 1, B-only = 2, C-only = 1, A∩B = 2, A∩C = 1, B∩C = 1, A∩B∩C = 1, Outside = 1.