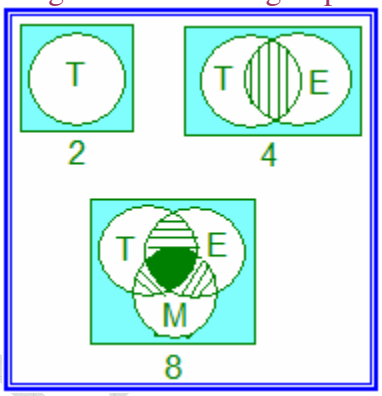
Salutation to your solution!

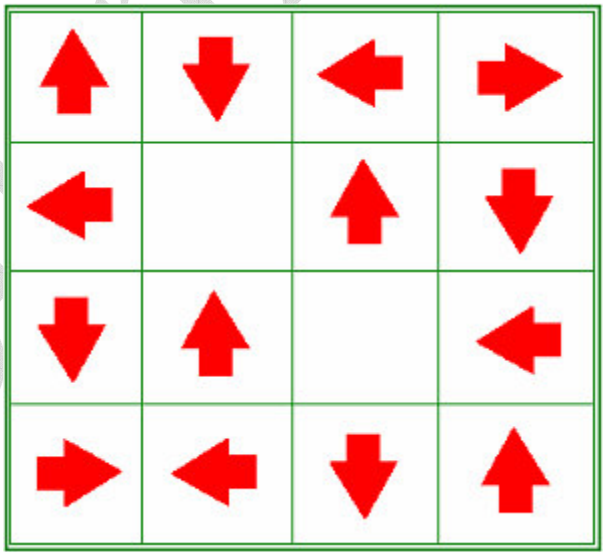
1. If some students write one examination, then they can be categorized into two groups (passed or failed). If they appear for two examinations, then they can be categorized into four groups (passed in two subjects, passed in first subject, passed in second subject, failed in both subjects). If they appear for three examinations, then they can be categorized into 8 groups (passed in all the three subjects, passed in two subjects (3 groups), passed in only one subject (3 groups), failed in all the three subjects). See the below picture for pictorial representation. If those students appear for 10 examinations, then how many possible groups can be identified?



2. Find the HCF (Highest Common Divisor) of the following 6 numbers. Note that you should finish it within one minute.

975312468	127845693
719342685	478315269
395742861	842153697

3. In the adjacent figure, fill in the blank spaces with appropriate arrows keeping the given arrow pattern in mind.



4. In the below figure A, Three identical equilateral triangle possesses circles as shown.

(1) Greatest circle inscribed in an equilateral triangle and two more circles.
(2) three identical circles that can fit in the triangle.
(3) One big circle and two small circles.

Which equilateral triangle possesses maximum area covered by circles? First? Second? Or Third?

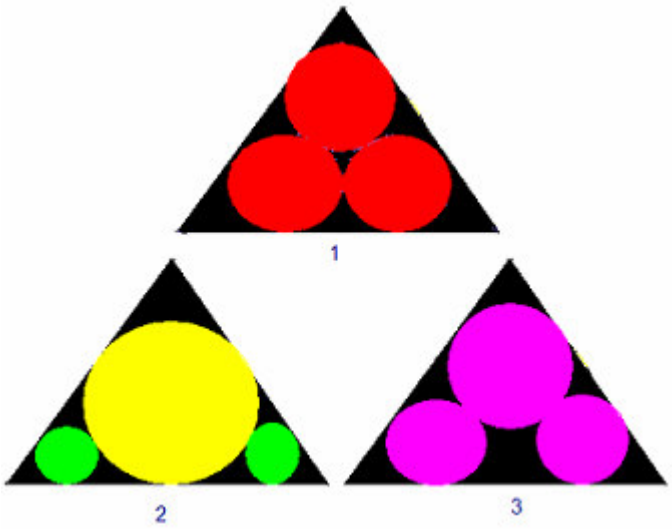


Figure A

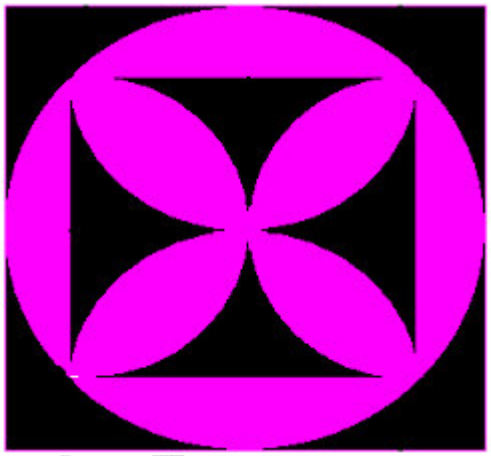


Figure B

5. In the above figure B, which area is more? Pink area? Or Black area?

Hints:

- Use Venn diagrams to derive a formula for the first question.
- Try to arrive at solution quickly. Factor method or division method may take more time.
- Formulae for area of square and circle can be found below which is required for fourth and fifth questions.

  Area of square = $(\text{side})^2$

  Area of circle = π x $(\text{radius})^2$

  π = 22/7

March 15th is the last date to send your answers. Mail your answers either by postal mail or e-mail to the following address.

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