

#LRDIoftheDay #1

Give this set a try. Will put up a video solution by the end of day. You may post the answers here or in the comments section on the website. Link to the set (for better visibility and ease of solving): <http://learningroots.in/cat-and-omet/lrdi-of-the-day-1/>

The six members of the Justice League were ranked by a group of friends – Leonard, Sheldon, Raj and Howard. From every friend, each character received a distinct integral rating ranging from 1 to 6, depending on how much the character was liked by that friend, i.e. the character he liked most, was given a rating of 6 and the character he liked least was given a rating of 1 and so on. The six characters were named Batman, Superman, Wonder Woman, Aquaman, Cyborg and Flash.

Further information is given below:

- I. Batman received a different rating from each friend. This holds true for the other five characters as well.
- II. For each of Batman, Wonder Woman and Cyborg the ratings received from the four friends were in A.P.
- III. The sums of four ratings received by Batman, Wonder Woman and Cyborg were also in A.P., with a common difference of 4, not necessarily in that order.
- IV. The sums of four ratings received by Superman, Aquaman and Flash were also in A.P., with a common difference of 1, not necessarily in that order.
- V. The ratings received by Batman from Sheldon, Wonder Woman from Howard and Cyborg from Raj were the same.
- VI. Wonder Woman received a higher rating from Raj as compared to what she received from Sheldon.

The attached table provides partial information about the ratings received by the six characters from the four friends.

1. What was the maximum possible sum of the four ratings received by any of the six characters?
(a) 14 (b) 16 (c) 17 (d) 18
2. What was the sum of the four ratings received by Flash?
(a) 12 (b) 18 (c) 14 (d) None of these
3. What was the rating received by Wonder Woman from Howard?
(a) 2 (b) 3 (c) 4 (d) None of these
4. What was the rating received by Superman from Sheldon?
(a) 1 (b) 3 (c) 6 (d) Cannot be determined

| | Leonard | Sheldon | Raj | Howard |
|--------------|---------|---------|-----|--------|
| Batman | 6 | | | 4 |
| Superman | 3 | | | 5 |
| Wonder Woman | 1 | | | |
| Aquaman | 2 | | | |
| Cyborg | 4 | | | |
| Flash | 5 | | | |

#LRDIoftheDay #2

Link to the set here: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-2/>

The following table provides partial details about the number of Twenty20s (T20) and One Day Internationals (ODIs) played by 6 players of the Indian cricket team against five nations viz. Australia, South Africa, England, Pakistan and the West Indies in the year 2017. Assume that the Indian cricket team played only against these nations in the year 2017, and also, they played no form of matches other than the T20s and the ODIs. India played 25% of its total matches against Australia, 20% of its total matches against South Africa, 10% of its total matches against Pakistan, 15% of its total matches against England, and 30% of its total matches against West Indies.

1. The total number of matches played by the Indian cricket team in 2017 could not be less than
2. Out of the matches played by the Indian cricket team against the West Indies in 2017, the number of matches not played by Jasprit could at least be
3. If Hardik played all the “ODIs” and Virat played all the “T20s” that the Indian cricket team played against England in 2017, then what could be the minimum number of T20s played by the Indian cricket team against England in the year 2017?
4. What is the minimum number of matches played by Shikhar throughout the season if he played all T20 matches against England, Pakistan and West Indies?

Answers by the end of day tomorrow.

| | Australia | | South Africa | | England | | Pakistan | | West Indies | |
|---------|-----------|------|--------------|------|---------|------|----------|------|-------------|------|
| | T20s | ODIs | T20s | ODIs | T20s | ODIs | T20s | ODIs | T20s | ODIs |
| Virat | 8 | | 12 | 24 | | 11 | | 12 | | 17 |
| Rohit | | 11 | | | 7 | | 8 | 11 | 16 | |
| Shikhar | 11 | 12 | 7 | 8 | | 13 | | 6 | | 18 |
| Hardik | 9 | | | 9 | 6 | 14 | 9 | | 24 | |
| Jasprit | 7 | 18 | 6 | | | | | 10 | 32 | 19 |
| Dhoni | | 16 | | 10 | 18 | | 11 | | | 16 |

#LRDIoftheDay #3

A scorcher of a set. If you can solve this within 10 minutes, you are all set to crack LRDI 2017. Link to the website post for better visibility: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-3/>

Kaushal, Pushkar and Vyoma are students who appeared for the IIFT entrance test in November 2017 (yeah, time-turner it is!). Each of the three mentioned students solved all the six different sections namely QA, DI, LR, VA, RC and GK. The following table provides information about the marks obtained by each student in every section as a percentage of the aggregate number of marks obtained by that student in all the six sections.

(Table 1)

The marks lost by each of the three students in each of the six sections are due to five different reasons namely: Did not know the concept, Did not see the question, Made a silly mistake, Haven't completed the syllabus and Lack of confidence. The following table provides information about the marks lost by each student due to each of the mentioned reasons as a percentage of the aggregate marks lost by that student in QA. This holds true for all the given six sections.

(Table 2)

The marks lost by Kaushal, Pushkar and Vyoma in each section as a percentage of the marks obtained by each one of them in that section is 40%, 25% and 20% respectively.

1. If the total marks obtained by Vyoma, Pushkar and Kaushal in all the sections are in the ratio 1: 2: 5, then the marks obtained by Pushkar in DI as a percentage of aggregate marks obtained by Vyoma in DI and Kaushal in GK is

(1) 20% (2) 16% (3) 15% (4) 18%

2. If the marks lost by Kaushal, Vyoma and Pushkar in VA is the same, then the marks lost by Pushkar in LR because of silly mistakes as the percentage of the total marks obtained by Kaushal in all the sections is

(1) 2% (2) 0.6% (3) 1% (4) 1.5%

Additional Information for questions 3 and 4:

The marks obtained by Kaushal in QA are not fewer than the marks obtained by Pushkar in DI and marks obtained by Pushkar in VA are not fewer than the marks obtained by Vyoma in RC.

3. If the marks obtained by Vyoma in GK is 144, then at least how many marks are obtained by Kaushal in LR?

(1) 25.25

(2) 40.25

(3) 48.75

(4) 37.5

4. If the marks lost by Pushkar in VA because he did not see the question is 45, then the marks lost by Vyoma in QA due to reason lack of confidence cannot be more than

(1) 50 (2) 32 (3) 36 (4) 40

| | QA | DI | LR | VA | RC | GK |
|---------|-----|-----|-----|-----|-----|-----|
| Kaushal | 12% | 20% | 18% | 10% | 24% | 16% |
| Pushkar | 10% | 10% | 36% | 24% | 5% | 15% |
| Vyoma | 20% | 20% | 10% | 16% | 10% | 24% |

| | |
|--------------------------------|-----|
| Did not know the concept | 12% |
| Did not see the question | 36% |
| Made a silly mistake | 10% |
| Haven't completed the syllabus | 22% |
| Lack of confidence | 20% |

#LRDIoftheDay #4

Another tough set. The solution will probably help look at sets in a different manner!

Link to the set: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-4/>

Six players Walter White, Rick Grimes, Mike Ross, Sherlock Holmes, Barney Stinson and Sheldon Cooper participated in a tournament which had 3 rounds: Chemistry, Physics and Law. Points received by each player in a round had to be less than the maximum points for that round (see the table). A player with the least points in a round was eliminated in that round. After round 3, the sum of all points received till then for each non-eliminated players was calculated and then the one with the maximum sum was declared as the GOAT.

Following table provides partial information about the performance of each player during the tournament.

(Table 1)

After the completion of the tournament following things were noticed:

- I. In each of the rounds Chemistry, Physics and Law one player got eliminated. Also, all points obtained were prime numbers.
- II. No player got less than one-third of the maximum points in any of the rounds.
- III. Points in each column as well as each row (of the table) were distinct.
- IV. The player who got the maximum points in Chemistry, got eliminated in Law.
- V. In Chemistry, Walter White got more points than Barney Stinson, who himself got more points than Rick Grimes.
- VI. The player who got eliminated in Physics had an aggregate of 24 points in Chemistry and Physics.

1. Who got eliminated in Chemistry?

- a. Walter White
- b. Rick Grimes
- c. Sherlock Holmes
- d. Barney Stinson

2. Who received the highest points in Chemistry?

- a. Walter White
- b. Rick Grimes
- c. Sherlock Holmes
- d. Barney Stinson

3. Number of points received by Mike Ross in Physics was

- a. 7
- b. 13
- c. 17
- d. 19

4. Who received the third highest points in Law?

- a. Sheldon Cooper
- b. Rick Grimes

c. Barney Stinson

d. Walter White

5. Who was declared as the GOAT at the end of the tournament?

a. Walter White

b. Mike Ross

c. Sherlock Holmes

d. None of these

| | Out of | Walter White | Rick Grimes | Mike Ross | Sherlock Holmes | Barney Stinson | Sheldon Cooper |
|-----------|--------|--------------|-------------|-----------|-----------------|----------------|----------------|
| Chemistry | 30 | | | 13 | | | 23 |
| Physics | 20 | 11 | | | | | |
| Law | 20 | | | | 17 | | 11 |

#LRDIoftheDay #5

The original post: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-5/>

A maxima-minima set. Try it out once but don't be worried if you get #Lostsomewhere in between!

'The Oceanic Six' started an institute which trained people to face emergencies especially in case of a plane crash on mysterious islands. 360 people were shortlisted from the applicants and the trainers distributed 60 people each among themselves to evaluate further. A person could be selected for multiple courses under the same trainer. The number of people selected for each course under each trainer has been given in the table below.

(Table 1)

1. What could have been the maximum number of people who were selected in all the courses under any single trainer?
2. What could have been the minimum number of people who got selected in at least two courses under Aaron Littleton?
3. What could have been the maximum number of people who got selected in at most two courses, under Sayid Jarrah?
4. What could have been the minimum number of people who got selected in exactly three subjects under Sun-Hwa Kwon?

| Trainer/Course | Surgery | Time Travel | Flying a Plane | Winning a Lottery | Communications Equipment |
|-----------------|---------|-------------|----------------|-------------------|--------------------------|
| Jack Shepard | 20 | 15 | 25 | 30 | 35 |
| Kate Austen | 15 | 18 | 22 | 29 | 31 |
| Hugo Reyes | 21 | 16 | 15 | 25 | 26 |
| Sayid Jarrah | 28 | 21 | 30 | 24 | 26 |
| Sun-Hwa Kwon | 26 | 32 | 41 | 27 | 29 |
| Aaron Littleton | 23 | 27 | 25 | 29 | 28 |

#LRDIoftheDay #6

Hotel Transylvania was built to accommodate all kinds of monsters and their families. To make it more attractive to his clients, Count Dracula decided to shape it in the form of a pyramid with one room at the top, two rooms on the third floor, three rooms on the second floor and four rooms on the first floor. The ground floor was where he stayed with his daughter Mavis and it was meant to be used for administrative and security purposes to not allow any human visitors. The rooms were numbered from 0 to 9. The total area of all the rooms on every floor was the same.

Unknown to most, Mavis was preparing for CAT 2017 and for the sake of her amusement and to aid her preparation, Dracula jumbled up the room numbers and gave an elaborate puzzle to Mavis to solve. The clues she got were:

- I. The sum of the room numbers on the first floor is 28
 - II. The room with the largest number on floor two is the central room on the floor
 - III. The 3rd room number from the left on the first floor isn't 7
 - IV. The sum of rightmost room numbers on the four floors put together is 11
 - V. The rooms numbered 0 and 5 are on different floors
 - VI. The number of the room at the top minus the number of leftmost room on the third floor is 4
 - VII. The sum of leftmost room numbers in the four floors add up to 20
1. Which room has the largest area?
 2. If the rightmost room on the first floor has the least area, which room number has the least area?
 3. What is the sum of the room numbers on the first floor which are not at extreme ends?
 4. Which floor has the least sum of all the room numbers present on that particular floor?

#LRDIoftheDay #7

An easy one today

Link to the post: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-7/>

On Baker street, there is a fresh colony formed with 40 houses numbered from 1 to 40. Sherlock and John being friends have decided to put together their life's earnings into buying 3 houses each. There could be a few houses that are owned jointly by both Sherlock and John. The numbers written on houses owned by Sherlock are in an arithmetic progression whereas, the numbers written on the houses owned by John are in a geometric progression. The ratio of the sum of numbers written on houses owned by Sherlock to the product of numbers written on houses owned by John, is 8:9.

1. If the product of the numbers written on the houses owned by John is the minimum, then what is the sum of the numbers written on the houses owned by John?
2. If the product of the numbers on the houses owned by John is the minimum, then what would be the median of the house numbers owned by Sherlock?
3. How many of the following values can be the sum of all the houses owned by John?
A. 7 B. 13 C. 21 D. 26 E. 43

#LRDIoftheDay #8

An arrangement question for today

An apartment building has five floors. Each floor has either one or two apartments. There are exactly eight apartments in the building. The residents of the building are J, K, L, M, N, O, P, and Q, who each live in a different apartment.

- a) J lives on a floor with two apartments
- b) K lives on the floor directly above P
- c) The second floor is made up of only one apartment
- d) M and N live on the same floor
- e) O does not live on the same floor as Q
- f) L lives in the only apartment on her floor
- g) Q does not live on the first or second floor

1. If O lives on the second floor, which one of the following CANNOT be true?

- (A) K lives on the fourth floor.
- (B) K lives on the fifth floor.
- (C) L lives on the first floor.
- (D) L lives on the third floor.
- (E) L lives on the fourth floor.

2. If M lives on the fourth floor, which one of the following must be false?

- (A) O lives on the fifth floor.
- (B) J lives on the first floor.
- (C) L lives on the second floor.
- (D) Q lives on the third floor.
- (E) P lives on the first floor.

3. Which one of the following must be true?

- (A) If J lives on the fourth floor, then Q does not live on the fifth floor.
- (B) If O lives on the second floor, then L does not live on the fourth floor.
- (C) If N lives on the fourth floor, then K does not live on the second floor.
- (D) If K lives on the third floor, then O does not live on the fifth floor.
- (E) If P lives on the fourth floor, then M does not live on the third floor.

4. If O lives on the fourth floor and P lives on the second floor, which one of the following must be true?

- (A) L lives on the first floor.
- (B) M lives on the third floor.
- (C) Q lives on the third floor.
- (D) N lives on the fifth floor.
- (E) Q lives on the fifth floor.

#LRDIoftheDay #9

Link to the question for better visibility: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-9/>

Mr. WB being the shrewd investor he is, had planned to invest in a few companies across various sectors on 26th September 2016. He selected the best performing two companies from each of IT, Automobile and Banking for this plan. While he was successful at the end of it, he was pretty bad at representing information and so, he hired Mr. Murphy as his Excel expert who inevitably messed up the names of the companies and wrote a ton of gibberish. The values were correct but the names weren't. The following was the output:

(Table 1)

He knew the companies' performance at the back of hand though and so, made certain observations. However, he was not great at calculations and so, he has hired you, Mr. WIMWI to help him crack the code! Can you do it? For all questions, assume that WB purchased shares only in multiples of 10.

1. If the two IT companies showed the two largest absolute variations in the share prices and the two Automobile companies showed the two least absolute variations, what was the approximate growth Mr. WB would have seen from the shares of the two Banking companies? (answer should be accurate up to two digits after the decimal point)
2. If Mr. WB had purchased a total of 60 shares of exactly 4 of the 6 companies, then the maximum possible percentage return on investment as on 26 September 2017 based on the shares of these 4 companies only could be (answer should be accurate up to two digits after the decimal point)
3. If one of the two IT companies showed the highest percentage variation in the share price while the other IT company showed the lowest percentage variation, then what was the combined percentage change in the share prices of the two IT companies? (answer should be accurate up to two digits after the decimal point)
4. If Mr. WB had purchased a total of 40 shares of exactly 4 of the 6 companies, what could be the minimum possible percentage return that he would have got? (answer should be accurate up to two digits after the decimal point)

The solution will be up tomorrow!

| Company | Share prices on 26 September 2016 | Share prices on 26 September 2017 |
|--------------|--------------------------------------|--------------------------------------|
| Brobdingnag | 150 | 230 |
| Houyhnhnms | 500 | 575 |
| Laputa | 200 | 320 |
| Balnibarbi | 400 | 440 |
| Luggnagg | 800 | 900 |
| Glubbdubdrib | 175 | 245 |

#LRDIoftheDay #10

Original post for comfortable solving: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-10/>

The first table tells us the percentage share of five of the top cement companies in India. The second table tells us the percentage shares of cement sold in the 11 states as a percentage of total sales.

Table 1 and Table 2

The market share of a company in a state is the total quantity of cement sold by that company in that state as a percentage of the total quantity of cement sold in that state.

1. In any state if no company had more than 50% market share, in at least how many states did ACC sell its cement?
2. If in all the states that Binani was present, it had at least 25% market share, in at most how many states did Binani sell cement?
3. What is the least number of companies who had sales in at least 3 states?

| | |
|-----------|-----|
| ACC | 28% |
| Birla | 17% |
| Ambuja | 18% |
| Ultratech | 23% |
| Binani | 14% |

| | |
|-------------------|-----|
| Madhya Pradesh | 12% |
| Arunachal Pradesh | 9% |
| Uttar Pradesh | 10% |
| Punjab | 4% |
| Tamil Nadu | 8% |
| Sikkim | 6% |
| Gujarat | 14% |
| Odisha | 9% |
| Rajasthan | 6% |
| Maharashtra | 9% |
| Jharkhand | 13% |

#LRDIoftheDay #11

A set from an old XAT paper. Pretty interesting and a bit difficult.

Link to the original post: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-11/>

The regular mathematics faculty could not teach because of being sick. As a stop gap arrangement, different visiting faculty taught different topics on 4 different days in a week. The scheduled time for class was 7:00 am with maximum permissible delay of 20 minutes. The monsoon made the city bus schedules erratic and therefore the classes started on different times on different days.

Mr. Singh didn't teach on Thursday. Calculus was taught in the class that started at 7:20 am. Mr. Chatterjee took the class on Wednesday, but he didn't teach probability. The class on Monday started at 7:00 am, but Mr. Singh didn't teach it. Mr. Dutta didn't teach ratio and proportion. Mr. Banerjee, who didn't teach set theory, taught a class that started five minutes later than the class featuring the teacher who taught probability. The teacher in Friday's class taught set theory. Wednesday's class didn't start at 7:10 am. No two classes started at the same time.

1. The class on Wednesday started at:

- (a) 7:05 am and topic was ratio and proportion.
- (b) 7:20 am and topic was calculus.
- (c) 7:00 am and topic was calculus.
- (d) 7:20 am and topic was probability.
- (e) 7:05 am and topic was probability.

2. The option which gives the correct teacher- subject combination is:

- (a) Mr. Chatterjee – ratio and proportion
- (b) Mr. Banerjee – calculus
- (c) Mr. Chatterjee – set theory
- (d) Mr. Singh – calculus
- (e) Mr. Singh – set theory

3. Probability was taught by:

- (a) Mr. Dutta on Monday
- (b) Mr. Dutta on Thursday
- (c) Mr. Singh on Wednesday
- (d) Mr. Singh on Monday
- (e) None of these

4. The option which gives a possible correct class time – week day combination is:

- (a) Wednesday – 7:10 am, Thursday – 7:20 am, Friday – 7:05 am
- (b) Wednesday – 7:20 am, Thursday – 7:15 am, Friday – 7:20 am
- (c) Wednesday – 7:05 am, Thursday – 7:20 am, Friday – 7:10 am
- (d) Wednesday – 7:10 am, Thursday – 7:15 am, Friday – 7:05 am

(e) Wednesday – 7:20 am, Thursday – 7:05 am, Friday – 7:10 am

#LRDIoftheDay #12 Easy-moderate set.

Link to the question: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-12/>

Exactly six dogs – P, Q, R, S, T, and U – are entered in a dog show. The judge of the show awards exactly four ribbons, one for each of first, second, third, and fourth places, to four of the dogs. The information that follows is all that is available about the six dogs:

- a. Each dog is either a greyhound or a labrador, but not both.
- b. Two of the six dogs are female and four are male.
- c. The judge awards ribbons to both female dogs, exactly one of which is a labrador.
- d. Exactly one labrador wins a ribbon.
- e. Dogs P and R place ahead of dog S, and dog S places ahead of dogs Q and T.
- f. Dogs P and R are greyhounds.
- g. Dogs S and U are labradors.

1. Which one of the following is a complete and accurate list of the dogs that can be greyhounds?

- (A) P, Q
- (B) P, R
- (C) P, Q, R
- (D) P, R, T
- (E) P, Q, R, T

2. Which one of the following statements CANNOT be true?

- (A) A female greyhound wins the second place ribbon.
- (B) A female labrador wins the second place ribbon.
- (C) A female labrador wins the third place ribbon.
- (D) A male greyhound wins the fourth place ribbon.
- (E) A female greyhound wins the fourth place ribbon.

3. Which one of the following dogs must be male?

- (A) dog P
- (B) dog R
- (C) dog S
- (D) dog T
- (E) dog U

4. Which one of the following statements can be false?

- (A) Dog P places ahead of dog R.
- (B) Dog P places ahead of dog T.
- (C) Dog R places ahead of dog U.
- (D) Dog R places ahead of dog T.
- (E) Dog S places ahead of dog U.

5. If dog Q is female, which one of the following statements can be false?

- (A) Dog P is male.
- (B) Dog R is male.

(C) Dog Q wins the fourth place ribbon.

(D) Dog Q is a greyhound.

(E) Dog T is a greyhound.

6. If dog T wins the fourth place ribbon, then which one of the following statements must be true?

(A) Dog P is male.

(B) Dog Q is male.

(C) Dog T is male.

(D) Dog Q is a labrador.

(E) Dog T is a labrador.

7. Which one of the following statements could be true?

(A) Dog P does not win a ribbon.

(B) Dog R does not win a ribbon.

(C) Dog S does not win a ribbon.

(D) Dog T wins a ribbon.

(E) Dog U wins a ribbon.

#LRDioftheDay #13 Old CAT set with rankings logic

Table A below provides data about ages of children in a school. For the age given in the first column, the second column gives the number of children not exceeding the age. For example, first entry indicates that there are 9 children aged 4 years or less. Tables B and C provide data on the heights and weights respectively of the same group of children in a similar format.

Assuming that an older child is always taller and weighs more than a younger child, answer the following questions. (If you think that any of the answers cannot be determined, put X as your answer)

1. What is the number of children of age 9 years or less whose height does not exceed 135 cm?
2. How many children of age more than 10 years are taller than 150 cm and do not weigh more than 48 kg?
3. Among the children older than 6 years but not exceeding 12 years, how many weigh more than 38 kg?

| Table A | |
|-------------|--------|
| Age (years) | Number |
| 4 | 9 |
| 5 | 12 |
| 6 | 22 |
| 7 | 35 |
| 8 | 42 |
| 9 | 48 |
| 10 | 60 |
| 11 | 69 |
| 12 | 77 |
| 13 | 86 |
| 14 | 100 |

| Table B | |
|--------------|--------|
| Height (cm.) | Number |
| 115 | 6 |
| 120 | 11 |
| 125 | 24 |
| 130 | 36 |
| 135 | 45 |
| 140 | 53 |
| 145 | 62 |
| 150 | 75 |
| 155 | 81 |
| 160 | 93 |
| 165 | 100 |

| Table C | |
|--------------|--------|
| Weight (kg.) | Number |
| 30 | 8 |
| 32 | 13 |
| 34 | 17 |
| 36 | 28 |
| 38 | 33 |
| 40 | 46 |
| 42 | 54 |
| 44 | 67 |
| 46 | 79 |
| 48 | 91 |
| 50 | 100 |

#LRDIoftheDay #14

Link to the question: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-14/>

The Film Federation of India chooses a movie to be sent as an official entry to the Oscars every year. Over the last few years, Newton, Court, Liar's Dice and Visaranai were sent to the Oscars by giving them ratings on four parameters namely Story, Dialogue, Cinematography and Direction. However, because of the recent rains in Mumbai, there was smudging of the paper on which the ratings were mentioned. After a bit of effort, the FFI could come up with the following table that indicates the possible ratings obtained by the movies in the different parameters.

(Table 1)

Further, it is known that

- A. No movie obtained the same rating in any two parameters
- B. No two movies obtained the same rating in any parameter
- C. The aggregate of the ratings in the four parameters, obtained by each movie was different.
- D. The aggregate of the ratings obtained by the four movies was different across the four parameters.

If you cannot arrive at a unique answer, mark X as your response.

1. What is the aggregate of the ratings obtained by the four movies for Story?
2. In which of the following parameters the aggregate ratings obtained by all the four mentioned movies can never be the maximum?

I. Dialogue

II. Cinematography

III. Direction

- a. I only
- b. II only
- c. III only
- d. II and III

3. The aggregate ratings secured by Newton, when Court gets a rating of 7 for Direction, is

| | Story | Dialogue | Cinematography | Direction |
|-------------|--------|----------|----------------|-----------|
| Newton | 7 or 8 | 5 or 6 | 3 or 4 | 5 or 6 |
| Court | 3 or 4 | 5 or 6 | 5 or 6 | 7 or 8 |
| Liar's Dice | 6 | 3 or 4 | 7 or 8 | 3 or 4 |
| Visaranai | 3 or 4 | 7 or 8 | 5 or 6 | 5 or 6 |

#LRDIoftheDay #15

The set has been published here for better visibility: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-15/>

The time traveler visited the earth at numerous times in the future. The table given below provides information about the percentage of Morlocks and Eloi (who form the total population) in AD 802,701, AD 802,702, AD 802,703 and AD 802,704.

(Table 1)

The number of Morlocks in the years AD 802,701, AD 802,702, AD 802,703 and AD 802,704 is given by H, G, W and T respectively. The following equations are known:

$$H + G + W = 4600$$

$$G + W + T = 6100$$

$$G - W = 500$$

$$H + T = 3300$$

1. What is the number of Morlocks in AD 802,703?
2. What is the ratio of the total number of inhabitants in AD 802,704 to the number of Eloi in AD 802,703?
 - a. 16:15
 - b. 15:16
 - c. 3:4
 - d. 4:3

Additional Information for questions 3 and 4:

The time traveler newly observed that there were a total of 2000 inhabitants more than what were officially recorded over the years such that the distribution in AD 802,701, AD 802,702, AD 802,703 and AD 802,704 of these newly observed inhabitants was in the ratio 4:3:2:1.

3. If the total number of Morlocks that were newly observed over the four years is equal to the total number of Morlocks in AD 802,701 after the addition of the newly observed inhabitants, then the total number of Eloi that have been newly observed will be at most?
4. If the total number of Morlocks that were newly observed is equal to the number of Morlocks in AD 802,701 after the addition of the new inhabitants, then the total number of Eloi that have been newly observed will be at least?

| | AD 802,701 | AD 802,702 | AD 802,703 | AD 802,704 |
|------------------------|------------|------------|------------|------------|
| Percentage of Eloi | 90% | 70% | 80% | 60% |
| Percentage of Morlocks | 10% | 30% | 20% | 40% |

#LRDIoftheDay #16

Venn Diagrams (CAT Original Set)

The set has been put up here for better visibility: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-16/>

Help Distress (HD) is an NGO involved in providing assistance to people suffering from natural disasters. Currently, it has 37 volunteers. They are involved in three projects: Tsunami Relief (TR) in Tamil Nadu, Flood Relief (FR in Maharashtra, and Earthquake Relief (ER) in Gujarat. Each volunteer working with Help Distress has to be involved in at least one relief work project.

- A maximum number of volunteers are involved in the FR project. Among them, the number of volunteers involved in FR project alone is equal to the volunteers having additional involvement in the ER project.
- The number of volunteers involved in the ER project alone is double the number of volunteers involved in all the three projects.
- 17 volunteers are involved in the TR project.
- The number of volunteers involved in the TR project alone is one less than the number of volunteers involved in ER project alone.
- Ten volunteers involved in the TR project are also involved in at least one more project.

1. Based on the information given above, the minimum number of volunteers involved in both FR and TR projects, but not in the ER project is

- (1) 1
- (2) 3
- (3) 4
- (4) 5

2. Which of the following additional information would enable to find the exact number of volunteers involved in various projects?

- (1) Twenty volunteers are involved in FR.
- (2) Four volunteers are involved in all the three projects.
- (3) Twenty three volunteers are involved in exactly one project.
- (4) No need for any additional information.

3. After some time, the volunteers who were involved in all the three projects were asked to withdraw from one project. As a result, one of the volunteers opted out of the TR project, and one opted out of the ER project, while the remaining ones involved in all the three projects opted out of the FR project. Which of the following statements, then, necessarily follows?

- (1) The lowest number of volunteers is now in TR project.
- (2) More volunteers are now in FR project as compared to ER project.
- (3) More volunteers are now in TR project as compared to ER project.
- (4) None of the above.

4. After the withdrawal of volunteers, as indicated in Question 3, some new volunteers joined the NGO. Each one of them was allotted only one project in a manner such that, the number of volunteers working in one project alone for each of the three projects became identical. At

that point, it was also found that the number of volunteers involved in FR and ER projects was the same as the number of volunteers involved in TR and ER projects. Which of the projects now has the highest number of volunteers?

- (1) ER
- (2) FR
- (3) TR
- (4) Cannot be determined

This was exactly how the CAT set went. In case of confusion, use your best judgment.

#LRDIoftheDay #17

Games and Tournaments it is! The set has been put up here for better visibility: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-17/>

Seven players A, B, C, D, E, F and G participate in a Chess tournament in which each player plays exactly once against each of the other six players. The tournament starts on Monday, finishes on Wednesday and an equal number of matches is played on all the three days. None of the matches ends in a draw and all the players win a distinct number of matches in the tournament. Some of the observations made on each day are given below:

Monday

- F loses to C, D, E and G.
- Only one player, who is not C, wins more than one match on Monday.

Tuesday

- B wins against C, D and E.
- E loses to A and C.
- G wins exactly two matches on Tuesday.

Wednesday

- G loses to B but wins against A and C.
- D wins against C and E.
- F loses to A and B.

1. Who wins the highest number of matches in the tournament?

(a) C (b) A (c) D (d) B

2. Who wins more than one match on Monday?

(a) D (b) B (c) A (d) Cannot be determined

3. Popat, an avid Chess buff, watched all the matches of the tournament except the ones that took place on Monday. How many times did he see either B or D winning a match?

4. On how many days during the tournament does at least one player win more than two matches?

#LRDIoftheDay #18

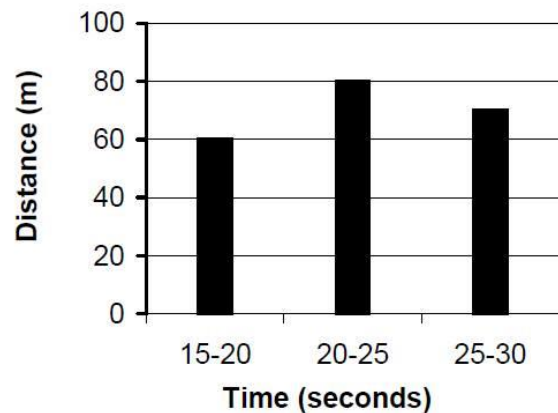
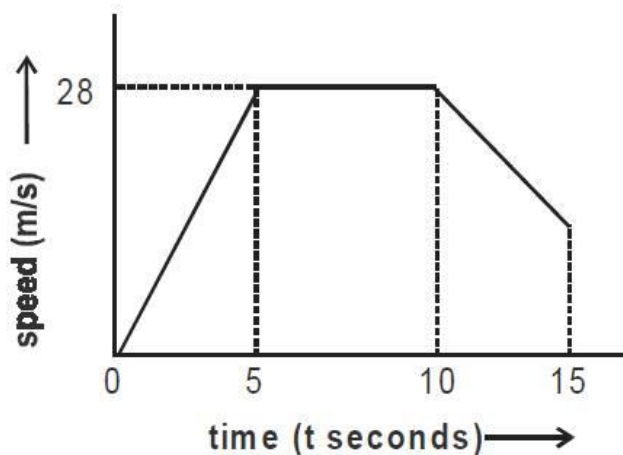
The set has been put up here for better visibility: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-18/>

A car starts moving along a straight line in the North direction at $t = 0$ seconds. The speed-time graph for the car is given below for the first 15 seconds in which it covers a total distance of 320 metres (Chart 1). The bar chart given below shows the distance covered by the car in the next 15 seconds (Chart 2). The speed-time curve for the car is a straight line in the time intervals 0–5 seconds, 5–10 seconds, 10–15 seconds, 15–20 seconds, 20–25 seconds and 25–30 seconds

1. What is the speed (in m/s) of the car at $t = 15$ seconds?
2. What is the speed (in m/s) of the car at $t = 30$ seconds?
3. What is the average speed (in m/s) of the car between $t = 8$ seconds and $t = 24$ seconds?

If you cannot determine a unique answer to any question, mark x as your answer.

The solution will be up tomorrow.



#LRDIoftheDay #19

The solution to 18 will be out tonight. I will not be available due to weekend batches and so, here goes the fresh set.

Check out the set here: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-19/>

Dominic Cobb has pooled in his life's savings into a super-secret account at Gringotts with encrypted numerical passwords. However, he is not too good at basic logic and reasoning and so, his passwords are crack-able. The passwords contain n digits such that:

- I. It contains all digits from 1 to n , and all of them are used exactly once.
- II. The number formed by the first two digits is divisible by 2, the number formed by the first 3 digits is divisible by 3, and so on such that the n digit password is divisible by n .

To remember which password he is using, Cobb ranks all the passwords having certain number of digits in increasing order and hence by just knowing the number of digits and the rank, he is able to correctly enter the password.

It is known that he uses 6 digit passwords for safeguarding his browsing history, and these are the ones dearest to him and hence, the most important.

1. What is the sum of all possible values of the fourth digit of the password that he uses for safeguarding his browsing history?
2. How many passwords can be used to safeguard his browsing history?
3. What is the difference between the last two passwords that he uses to safeguard his most important data?
4. What is the number of five digit passwords that can he use?

Solution will be up tomorrow. Happy solving!

#LRDIoftheDay #20

The blog post for better visibility and links to previous sets: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-20/>

P. C. Sorkar, the master magician from India of international repute once placed 52 playing cards on his table. Sheldon Cooper, the first of His name, Protector of the Spot was learning to shuffle the cards to learn the magic that his friend Howard had refused to teach him and started studying the patterns if he shuffled the deck in a particular manner. Initially the topmost card was picked and put back into the deck again so as to occupy the 27th place from the bottom. After this the lower most card was drawn out and inserted back into the deck so as to occupy the 26th place from the top. This set of two operations constituted what he called a shuffling.

1. The top card will be at what position after 17th shuffling?
 - a. 42nd from the top
 - b. 10th from the bottom
 - c. 42nd from the bottom
 - d. 10th from the top
2. After how many shufflings will third card from the top come back to its original position?
 - a. 26
 - b. 29
 - c. 52
 - d. 55
3. What can we say about the positions of playing cards after first 26 shufflings?
 - a. The card that was initially at the top of the deck will be immediately next to the card that was initially at the bottom of the deck.
 - b. The top 26 cards will become the bottom 26 cards, in the same order.
 - c. The bottom 26 cards will become the top 26 cards, in the reverse order.
 - d. None of the above

The solution will be put up tomorrow! Happy solving!

PS: This set was similar to a set that appeared in CAT 2016 slot 2. That was based on alphabet coding and was far easier than this one.

#LRDIoftheDay #21

The set has been put up here as well: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-21/>

You can read a bit about the theory here in case you have no clue how to proceed: <http://learningroots.in/cat-and-omet/lr-di/a-game-of-sticks/>

Two players X and Y are playing a game of coins. Any player can pick 2, 3, 4, 5 or six coins in his turn. The player who picks the last coin always wins. If per chance there remains one coin for a person before his turn, then the game ends in a draw. While answering every question you will assume that each person is rational, intelligent and will always try to win the game.

1. If there are 70 coins in all and X starts the game, what should he pick in order to ensure a win always?

- a. 6
- b. 2
- c. 4
- d. He can never win

2. If Y starts the game and there are 32 coins. What should he pick in order to ensure win, irrespective of whatever strategy X applies?

- a. 4
- b. 6
- c. 3
- d. He can never win

3. If there are 30 coins and it's X's turn, how many different possible number of coins he can pick so that he does not lose the game?

- a. 1
- b. 2
- c. 3
- d. 4

#LRDIoftheDay #22

Simple arrangements set. The set has been put up here: <http://learningroots.in/cat-and-om.../lrdi/lr-di-of-the-day-22/>

Six girls P, Q, R, S, T and U have to be allotted six seats in a particular row of an AC chair car compartment of Jan Shatabdi express. The seats are successively numbered from 41 to 46 in order. Seats numbered 41 and 46 are window seats, while 43 and 44 are aisle seats.

Allotment of seats has to be made according to the following conditions:

- I. Q and S quarrel a lot, so they must not be in adjacent seats.
- II. S and U are best friends, so they are to be given adjacent seats.
- III. R cannot sit for long hours at a time, so she must be allotted a seat along the passage.
- IV. T has requested for a window seat, so she should be allotted one.

1. If P gets seat 42 and T does not get seat 41, which of the following must be true?

- a. S is allotted seat numbered 44
- b. Q is allotted a window seat
- c. U is allotted a seat along the passage.
- d. None of these

2. If Q is allotted seat number 42, and R is not allotted seat number 43, then which of the following statements are necessarily true?

- I. P is allotted seat number 43.
- II. S is allotted seat number 45.
- III. T is allotted seat number 41.
- IV. U is allotted a window seat.

- a. I and II
- b. II and III
- c. I and III
- d. II and IV

3. If S is not allotted seats 41, 42 or 43 and Q is allotted a seat beside U, then which of the following must be true?

- a. P is allotted seat number 42
- b. T is allotted seat number 41
- c. U is allotted seat number 45
- d. All three statements are true

4. If T is allotted seat number 46 and U gets a seat along the passage, then which of the following must be true?

- a. S = 42/45
- b. P = 41/42
- c. Q = 41/42/45
- d. All of these

#LRDIoftheDay #23

Slightly difficult

Blog post here for better visibility: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-23/>

To identify the best players of Clash Royale and to encourage good players reach the next level, there was a CCGS tournament that was conducted. There were several players who participated in the tournament. Each player was categorised as either a 'Master' or a 'Noob'. A 'Noob' would immediately turn 'Master' once he had played exactly 3 matches with 'Master' players in the tournament. There were 3 rounds in the tournament. At the end of Round 3 it was found that each player had now turned a 'Master'. No player left the tournament before the completion of Round 3.

The following table provides the information about the number of matches played in each round and the number of 'Master' and 'Noob' players at the beginning of each round.

(Table 1)

Here, X, Y, A, B, P and Q represent missing values in the table.

Further, the following information is given below:

- Each match involved one 'Master' and one 'Noob' player.
 - It is not necessary that each player played a match in every Round.
 - At the end of Round 1, the number of 'Noob' players was half of the number of 'Master' players.
 - There were exactly 3 more 'Master' players at the beginning of Round 2 as compared to the beginning of Round 1.
- How many matches were played in the tournament? If you cannot determine the number of matches uniquely, type in 0 as your answer.
 - What can be the maximum possible difference between any two possible values of Q?
 - Which of the following cannot be TRUE?
 - $P - Q = 4$
 - $P - Q = 6$
 - $P - Q = 3$
- Only I
 - Only II
 - Only III
 - Both II and III

| Round | Number of 'Master' players | Number of 'Noob' players | Number of matches |
|---------|----------------------------|--------------------------|-------------------|
| Round 1 | X | A | 14 |
| Round 2 | Y | B | P |
| Round 3 | 12 | 3 | Q |

#LRDIoftheDay #24

Slightly easy one for today: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-24/>

An Inspector has discovered that 5 people were involved in the murder of Miss Batliwala. Nine suspects are short listed by him. Maina, Naina and Raina are women. Ooman, Sangha, Topaz, Unni, Vasu and Wagle are men. Through intelligent deliberation and analysis, Ghote has also made a checklist of points.

- I) There were at least two women involved in the crime.
- II) Raina will never collude with Ooman.
- III) Sangha and Topaz will always commit crimes together.
- IV) Unni and Vasu never work together.

1. If Maina was involved in the crime and Naina is not, which statements given below are necessarily true?

- i) Either Unni or Vassu but not both are involved.
 - ii) Sangha and Topaz will be involved
- a. i only
 - b. ii only
 - c. Both i and ii
 - d. Either i or ii

2. Greatest number of combinations are possible if which of the following are definitely involved in the crime?

- a. Sangha
- b. Vasu
- c. Raina
- d. Wagle

3. Which of the following statements is definitely true?

- i) If only two women are involved in the crime Sangha and Topaz must be involved.
 - ii) If Raina is not involved in the crime, Ooman must be involved.
 - iii) If either Maina or Naina is not involved in the crime Sangha and Topaz must be involved.
- a. i only
 - b. i and iii only
 - c. ii only
 - d. iii only

4. If Topaz is definitely involved in the crime, in how many different ways in terms of partners could he have committed it?

#LRDIoftheDay #25

The annoying kind

For better visibility: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-25/>

There are 11 players on each side in ODI cricket, and one team bats while the others bowl. Then the teams swap after 50 overs. With an eye on the 2019 World Cup, the coach of the Indian ODI cricket team, Ravi Shastri is a master strategist who thinks faster than a tracer bullet when it comes to shuffling the batting order. In a recent match against Australia, India scored 340 runs for the loss of 9 wickets and the last unbeaten pair of batsmen together scored 40 runs before they ran out of overs.

In the batting order the 4th and the 5th men each scored exactly a 100 runs, while the first two batsmen scored 50 between themselves.

The ratio of the runs scored by the first three batsman, Shikhar, Rohit and Hardik (though not necessarily) 1, 2 and 3 in the batting order) was 6 : 4 : 3.

Two consecutive batsman scored 0, and the first 9 batsmen in the batting order scored either 0 or scores that were multiples of 5.

Dhoni was the 8th batsmen in the batting order, and the next person after Dhoni scored a 5.

The runs scored by Virat if added to the extras (bonus runs not scored by any batsmen but given by the bowling team to the batting team) equaled Shikhar's score.

Rohit scored one-fifth of Manish's score and equal to Virat's score.

Kedar scored 5 times what Virat scored.

Bhuvaneshwar and Jasprit scored 18 and 22 respectively, while together they scored 25 more than Dhoni and Hardik together.

Yuzvendra was India's most successful bowler of the match, and Kuldeep took 2 wickets less than Yuzvendra.

1. What was the number of extras in the Indian score? (Enter 0 as your answer if the answer cannot be determined uniquely)
2. Virat's number in the batting order was immediately after
 - a. Manish
 - b. Kedar
 - c. Manish or Kedar
 - d. Indeterminate
3. What is the total of the least 5 scores in the Indian Cricket team (excluding extras)? (Enter 0 as your answer if the answer cannot be determined uniquely)
4. Who has scored 5 runs?
 - a. Yuzvendra
 - b. Kuldeep
 - c. Virat
 - d. Yuzvendra or Kuldeep

#LRDIoftheDay #26

Here you go: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-26/>

An exercise on interlinked data. Fairly moderate.

In spite of their busy schedule, the residents of Central City still manage to squeeze in some time to watch 8 TV series of their choice. The given table provides details about the number of TV series not liked by each of these ten residents.

(Table 1)

The following bar chart provides details about the number of residents (out of the 10) who liked the respective TV series.

(Graph 1)

1. What is the total number of students who did not like 13 Reasons Why? (If you cannot determine the answer uniquely, mark 0 as your response)

2. Which of the following TV series is not liked by Iris West?

a. Breaking Bad

b. The Big Bang Theory

c. Game of Thrones

d. None of these

3. Which of the following TV series is liked by Oliver Queen?

a. The Big Bang Theory

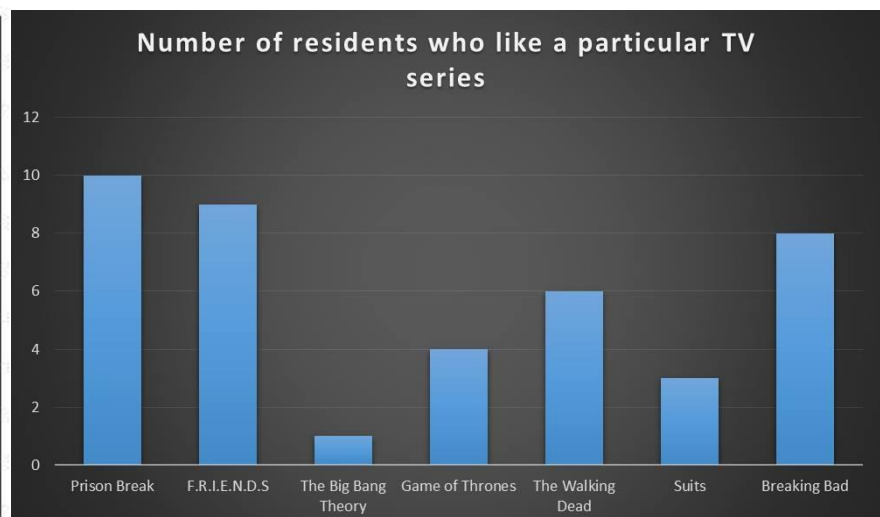
b. Suits

c. 13 Reasons Why

d. Both (a) and (b)

4. Out of the given eight TV series, how many are not liked by Firestorm but are liked by Captain Cold? (If you cannot determine the answer uniquely, mark 0 as your response)

| | |
|----------------|---|
| Barry Allen | 6 |
| Iris West | 3 |
| Captain Cold | 4 |
| Firestorm | 5 |
| Killer Frost | 7 |
| Cisco Ramon | 0 |
| Oliver Queen | 2 |
| Felicity Smoak | 1 |
| Jay Garrick | 4 |
| Harrison Wells | 5 |



#LRDIoftheDay #27

<http://learningroots.in/cat-and-omet/lr-di-of-the-day-27/>

In Isla Nublar, there is a tourist attraction known as the Jurassic Park. To strategize the marketing activities for the upcoming event regarding fresh species of dinosaurs, the board members sat around a circular table. However, the owner of the Park got stuck and so, could not arrive on time. To keep themselves entertained, the 10 board members viz. Ant-Man, Batman, Captain America, Deadpool, Electro, Flash, Groot, Hulk, Iron Man and Joker played a small game.

Each board member had a secret number in his/her mind and whispered it to both his neighbours. Then each board member announced a number that was the average of the two numbers whispered in his ears by his neighbours.

The table below gives the numbers announced by each board member and the neighbours of each board member.

1. What is the secret number of Flash?
2. How many of the board members had negative numbers?
3. What is the sum of the secret numbers of Captain America and Iron Man?
4. Who among the following chose the smallest number?
 - a. Batman
 - b. Joker
 - c. Flash
 - d. Groot

The solution will be up tomorrow!

| Board member | Number announced | Neighbours |
|-----------------|------------------|--------------------------|
| Ant-Man | 1 | Batman, Flash |
| Batman | 2 | Ant-Man, Joker |
| Captain America | 7 | Deadpool, Groot |
| Deadpool | 8 | Captain America, Hulk |
| Electro | 5 | Groot, Iron Man |
| Flash | 10 | Ant-Man, Hulk |
| Groot | 6 | Captain America, Electro |
| Hulk | 9 | Deadpool, Flash |
| Iron Man | 4 | Electro, Joker |
| Joker | 3 | Batman, Iron Man |

#LRDIoftheDay #28

Slightly easier one for today: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-28/>

Stanley Gordon, Charles Van Dyke, Daniel Hardman, Jessica Pearson, Harvey Specter and Louis Litt are all characters to be partners of a law firm that was to be named as per the last names of the partners as a part of the TV series Suits. As the seasons progressed, the name of the firm underwent a lot of changes. The writers made sure that exactly one partner left the firm at the end of a season and a fresh partner joined in at that point in time. At any point in time, there would be exactly 4 partners in the firm. A few facts about the first four seasons are known:

- I) Harvey Specter became a partner at the end of season 1 and Louis Litt left the partnership at the end of season 3. These two lawyers were partners for an equal number of seasons.
- II) Jessica Pearson was re-appointed as a partner at the beginning of season 4
- III) Stanley Gordon became a partner for the first time replacing Daniel Hardman.
- IV) The seasons were held back-to-back, were of equal duration and nobody left/joined during a season.

1. For how many seasons was Charles Van Dyke a partner?

2. If Stanley Gordon, Charles Van Dyke, Daniel Hardman, Jessica Pearson, Harvey Specter and Louis Litt are represented by digits 1 to 6 in the same order, how many of the following can never be the sum of the digits of the partners?

- i. 11
- ii. 12
- iii. 13
- iv. 14
- v. 15
- vi. 16

3. Who among the following left at the end of the first season?

- a. Louis Litt
- b. Jessica Pearson
- c. Daniel Hardman
- d. Cannot be determined

4. For how many seasons was Louis Litt a partner?

#LRDIoftheDay #29

The set for better visibility: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-29/>

Walter White and Jesse Pinkman manufacture and distribute Blue Sky to five cartels headed by Krazy-8, Hector Salamanca, Gus Fring, Tortuga and Don Eladio coded as C1, C2, C3, C4 and C5 respectively. To cover up their operations, they have designed an intricate supply chain involving 4 factories F1, F2, F3 and F4 from where 5 intermediate agents A1, A2, A3, A4, and A5 transport Blue Sky to the five cartels coded as C1, C2, C3, C4 and C5. The entire network is as shown: (image 1)

The capacities of F1, F2, F3 and F4 are 200 pounds, 300 pounds, 100 pounds and 500 pounds respectively. The requirement of Krazy-8, Tortuga and Don Eladio is 250 pounds, 200 pounds and 150 pounds respectively. The requirement of Hector Salamanca and Gus Fring is in the ratio of 3:2.

Assume that no agent keeps even a single gram of Blue Sky and gives away whatever he has to the next entity in the chain. Each factory distributes an equal amount to each agent/cartel that is connected to the factory. The motion occurs in one direction only along a single chain and once the demand of a cartel is satisfied, the remainder quantity moves out of the cartel. Basic supply chain rules apply and optimization is expected.

1. What is the ratio of the amount of Blue Sky that goes into C1 to that of the amount of Blue Sky that goes out of C1?

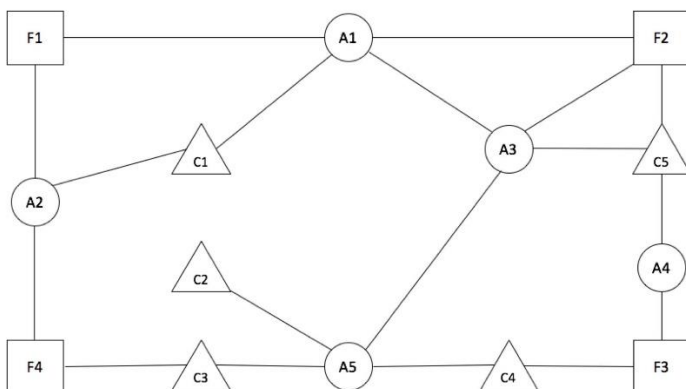
- a. 5:2
- b. 3:1
- c. 2:1
- d. 7:2

2. What is the requirement of Hector Salamanca's cartel?

3. How much Blue Sky moves along the C5 – A3 channel?

4. What is the ratio of the amount of Blue Sky handled by A1 to that handled by A5?

- a. 1:3
- b. 2:3
- c. 3:4
- d. 5:9



#LRDIoftheDay #30

#HappyHalloween

The set: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-30/>

Sixteen super-villains: Darth Vader, Joker, Harley Quinn, Riddler, Sauron, Voldemort, Two-Face, Dormammu, Scarecrow, Lex Luthor, Ra's Al Ghul, Bane, General Zod, Loki, Ares and Thanos are divided into two groups, A and B of 8 members each. Each villain has to duel against exactly one villain from the other group. Duels are numbered from first to eighth in the order in which they are played (the first duel happening before the second duel and so on) and two villains participate in a duel. Further it is known that:

- I. Darth Vader, Dormammu and Bane are in the same group. Also, General Zod, Lex Luthor and Sauron are in the same group.
- II. Thanos is in group B and duels against Voldemort.
- III. The sixth duel is between General Zod and Harley Quinn and the eighth duel is between Dormammu and Lex Luthor. Dormammu belongs to group A.
- IV. Riddler is in the group which does not have Harley Quinn, Ra's Al Ghul or Ares. Also, the group having Two-Face does not have Joker, Loki or Scarecrow.
- V. Joker duels just after Scarecrow but before Thanos.
- VI. Two-Face and Ra's Al Ghul are in the same group and they participate in the first and the second duel respectively.
- VII. The duel in which Bane participates is neither the first nor the third nor the fifth nor the seventh.

1. Which of the following gives a complete list of the super-villains belonging to group A?

- (a) Darth Vader, Harley Quinn, Voldemort, Two-Face, Dormammu, Ra's Al Ghul, Bane and Ares
- (b) Darth Vader, Joker, Riddler, Voldemort, Dormammu, Scarecrow, Bane and Ares
- (c) Joker, Riddler, Sauron, Scarecrow, Lex Luthor, General Zod, Loki and Ares
- (d) Data insufficient

2. If Riddler participates in the first duel and Voldemort participates in the fifth duel, then Joker can duel against which of the following villains?

- (a) Darth Vader or Ares only
- (b) Bane or Ra's Al Ghul only
- (c) Ares or Darth Vader or Bane only
- (d) Ares or Darth Vader or Bane or Ra's Al Ghul

3. If Darth Vader duels against Scarecrow, then how many different super-villains can possibly be the one who duels against Ares?

- (a) 2
- (b) 3
- (c) 4
- (d) 5

4. If Darth Vader duels against Scarecrow, then against which super-villain does Riddler duel?

- (a) Ares
- (b) Two-Face
- (c) Ra's Al Ghul
- (d) Either (a) or (b) or (c)

#LRDIoftheDay #31

Link to the set here: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-31/>

A good set from an old CAT

Krishna distributed 10-acre land to Gopal and Ram who paid him the total amount in the ratio 2 : 3. Gopal invested a further Rs. 2 lakh in the land and planted coconut and lemon trees in the ratio 5 : 1 on equal areas of land. There were a total of 100 lemon trees. The cost of one coconut was Rs. 5. The crop took 7 years to mature and when the crop was reaped in 1997, the total revenue generated was 25% of the total amount put in by Gopal and Ram together. The revenue generated from the coconut and lemon trees was in the ratio 3 : 2 and it was shared equally by Gopal and Ram as the initial amount spent by them were equal.

1. What was the total output of coconuts?
2. What was the value of output per acre of lemon trees planted? (in terms of lakhs/acre)
3. What was the amount (in Rs.) received by Gopal in 1997?
4. What was the value of output per tree for coconuts?
5. What was the ratio of yields per acre of land for coconuts and lemons (in terms of number of lemons and coconuts)?
 - a. 3 : 2
 - b. 2 : 3
 - c. 1 : 1
 - d. Cannot be determined

#LRDIoftheDay #32

A set on sequential data

The original post: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-32/>

The following Table gives the number of students in all the different classes of Indian Public school in the years 2050 and 2051 respectively.

(Table 1)

It is known that

- New students join the school only in class VII
 - No student leaves the school before passing out from class XII
 - The students, who fail, have to repeat the year.
- If no student of class XI failed in the year 2050, then what is the pass percentage of class XII for the year 2050? (Write your answer accurate up to 2 places after the decimal. Eg. If your answer comes out to be 14.2857, it will be 14.29)
 - If the new joiners in the year 2051 were 76, then what is the number of students who failed in class XII in the year 2050?
 - How many students of class IX failed in the year 2050, if no student of class XI failed in the year 2050?
 - If the number of students of class VII who failed in the year 2050 is 64, then what is the total number of students failed in the year 2050?
 - What can be the highest pass percentage of class VII? (If your answer is say 99%, write 99 in the text box)

| Class | Students in the year 2050 | Students in the year 2051 |
|--------------|----------------------------------|----------------------------------|
| VII | 120 | 140 |
| VIII | 84 | 100 |
| IX | 72 | 70 |
| X | 64 | 60 |
| XI | 48 | 56 |
| XII | 36 | 54 |

#LRDIoftheDay #33

Original link: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-33/>

A popular arrangements question. If you can solve this without breaking into a sweat, you should be able to solve most of the arrangements questions.

On a Friday morning, local paediatrician Dr. Johnson N. Johnson had appointments with five infants scheduled at 9:00, 9:30, 10:00, 10:30, and 11:00. Each of the five, including the Ortiz baby, is a different number (viz. 1, 2, 3, 4, or 5) months old.

Being a bit forgetful, Dr. Johnson hired an assistant to keep records. The following information could be recovered from her records.

- Immediately after seeing infant Beth, Dr. Johnson examined the Majors infant, who is 2 months younger than Beth.
- Erica isn't the one of the five who is 1 month old.
- The doctor saw David later in the morning than the 1-month-old.
- The 9:30 appointment was with the 3-month-old baby.
- The Luce infant isn't the one who is 5 months of age.
- Dr. Johnson saw the Nash infant, then examined Alice, who is 2 months older than the Nash baby.
- The paediatrician's 10:00 appointment was with Chad, who isn't the Majors or the Nash baby.
- The Prior baby isn't the 1-month-old and wasn't the doctor's 9:00 examinee.

1. How old(in months) is infant Beth?

2. At what time did infant Erica meet the doctor? (write your answer in the form of hhmm)

3. Whose baby is infant Chad?

- a. Ortiz
- b. Majors
- c. Luce
- d. Nash

4. Which of the following is not correct with respect to infant David?

- a. He is Nash's baby
- b. He is 2 months old
- c. His appointment was at 11.00
- d. None of these

5 Who was the last infant to meet the doctor?

- a. Alice
- b. David
- c. Chad
- d. Erica

There are a few things that have not been put explicitly. Use your best judgment while solving this. CAT sets might be similar with limited information.

#LRDIoftheDay #34

Slightly easier one for today. Expected time would be around 8 minutes.

Link to the set: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-34/>

In a fun-filled episode of Koffee with Karan, in the rapid fire segment, the participants were asked to rank the five top actors in the industry and also assign points to these actors.

Numbers mentioned in the brackets are the points awarded to that particular actor by the participant mentioned in the corresponding row.

'X' is the sum of the points earned by three actors mentioned in any particular row of the table as a percentage of total points awarded by the participant mentioned in the same row. Each participant awards distinct points to all the 5 actors and points awarded by the judges are non negative integers.

The following details are known:

(Table 1)

1. The minimum possible aggregate number of points earned by Ranbir can be
2. The total points earned by Aamir as a percentage of the total points earned by all the actors can at the most be (answer in terms of percentage i.e. if your answer is 90%, type in 90 as your answer)
3. If the points given to Salman by Alia and Varun are the same and if the Arjun gave 4 points to Shah Rukh, then the total points earned by Aamir is
4. How many of the mentioned actors definitely would not earn more aggregate points than Ranbir?

| Participants | Actors | | | X |
|--------------|---------------|---------------|---------------|----|
| Parineeti | Shah Rukh (9) | Salman (6) | Aamir(5) | 80 |
| Alia | Ranbir (8) | Hrithik (6) | Shah Rukh (4) | 90 |
| Arjun | Salman (11) | Hrithik (7) | Ranbir (6) | 80 |
| Varun | Ranbir (8) | Shah Rukh (7) | Hrithik (2) | 85 |
| Shraddha | Aamir (8) | Salman (5) | Shah Rukh (3) | 80 |

#LRDIoftheDay #35

Link to the set: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-35/>

Each of the six persons namely A, B, C, D, E and F took one ball from a box containing 300 balls of six different colours Blue, Black, Red, White, Green and Yellow. Also, the number of balls of each colour is the same. Following are the details of three statements made by each of the persons. Exactly one of the statements made by each person is true and only one of the statements made about B is correct. Also, balls of two particular colours were not taken by any of the persons.

(Table 1)

1. What is the colour of the ball taken by A?

- a. Green
- b. Yellow
- c. Blue
- d. Red

2. What is the colour of the ball taken by C?

- a. Green
- b. White
- c. Blue
- d. Red

3. For how many of the mentioned persons, the exact colour of the balls taken by them can be determined?

4. Which of the following statements, if true would be sufficient to determine the exact colour of the balls taken by all the mentioned persons?

- a. D took a green ball
- b. E took a yellow ball
- c. Either (a) or (b)
- d. The data given is already sufficient

| | Statement 1 | Statement 2 | Statement 3 |
|---|----------------------|------------------------------------|--------------------------------|
| A | B took a green ball | C did not take a red ball | E took a blue ball |
| B | A took a green ball | D did not take a yellow ball | C took a black ball |
| C | F took a white ball | F did not take a white ball | A did not take a blue ball |
| D | E took a yellow ball | F took a yellow ball | One green ball was taken by me |
| E | F took a red ball | B took the same coloured ball as A | B took a blue ball |
| F | A took a white ball | C took a black ball | D did not take a red ball |

#LRDIoftheDay #36

Link to the set: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-36/>

The 7 IIMs – IIM Ahmedabad, IIM Bangalore, IIM Calcutta, IIM Lucknow, IIM Indore, IIM Kozhikode and IIM Shillong have quite a few bright students studying hard to become better managers who climb up the corporate ladder and create value for themselves, the organization and the society at large. The tables given below show the number of students in a few combinations of four colleges taken together (Table 1) and the percentage of male students in these institutes (Table 2).

1. What is the ratio of the number of female students in IIM Ahmedabad to the number of male students in IIM Lucknow?
 - a. 19 : 16
 - b. 27 : 19
 - c. 19 : 27
 - d. 11 : 5
2. What is the the maximum difference between the number of male students and the number of female students for any college among the given colleges?
3. The number of male students in IIM Indore, IIM Bangalore and IIM Kozhikode taken together is approximately what percent more than the number of female students in IIM Ahmedabad, IIM Calcutta and IIM Kozhikode taken together? (Mark the nearest integer as your answer, if it is 98.51%, mark 99 as your answer)
4. What is the difference between the number of male students in IIM Indore and the total number of students in IIM Shillong?

| Cluster | Number of students |
|---|--------------------|
| IIM Indore, IIM Ahmedabad, IIM Bangalore, IIM Calcutta | 870 |
| IIM Kozhikode, IIM Indore, IIM Ahmedabad, IIM Bangalore | 850 |
| IIM Ahmedabad, IIM Bangalore, IIM Calcutta, IIM Lucknow | 780 |
| IIM Shillong, IIM Kozhikode, IIM Indore, IIM Ahmedabad | 670 |
| IIM Calcutta, IIM Lucknow, IIM Shillong, IIM Kozhikode | 640 |
| IIM Bangalore, IIM Calcutta, IIM Lucknow, IIM Shillong | 630 |
| IIM Lucknow, IIM Shillong, IIM Kozhikode, IIM Indore | 600 |

| College | % of male students |
|---------------|--------------------|
| IIM Lucknow | 80% |
| IIM Shillong | 75% |
| IIM Indore | 70% |
| IIM Calcutta | 70% |
| IIM Bangalore | 65% |
| IIM Kozhikode | 60% |
| IIM Ahmedabad | 40% |

#LRDIoftheDay #37

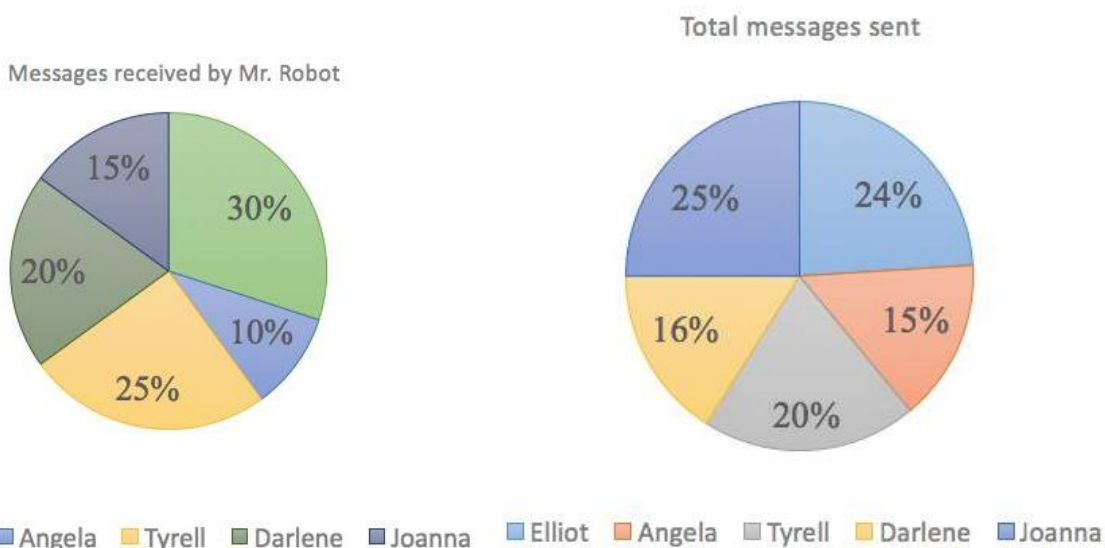
Interlinked pies

Link to the set: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-37/>

On the 3rd of November 2017, WhatsApp suddenly stopped working causing a lot of commotion among a lot of users. Especially in case of Elliot, Angela, Tyrell, Darlene, Joanna and a certain Mr. Robot who hacked their way through a network provider to gain access to free SMSes. The data regarding the SMSes sent within this group is known. The first chart tells us the split of the total number of SMSes that were received by Mr. Robot (Pie chart 1) and the second chart gives us the total number of SMSes that were sent by the other five people (Pie chart 2).

The total number of SMSes received by Mr. Robot is 3000 and the total number of SMSes sent by Elliot, Angela, Tyrell, Darlene and Joanna is X.

1. What is the least possible value of X?
2. Who sent the least percentage of his/her total SMSes to Mr. Robot?
 - a. Angela
 - b. Tyrell
 - c. Darlene
 - d. Joanna
3. If it is known that at least 25% of the SMSes sent by Angela were to Mr. Robot and at most 40% of the SMSes sent by Joanna are to Mr. Robot then what is the maximum possible number of persons who have sent more than 80% of their SMSes to Mr. Robot?
4. Which of the following can be the value of p, if p% of the SMSes sent by Darlene are to Mr. Robot? (Use the data from the previous question)
 - a. 30
 - b. 40
 - c. 50
 - d. None of these



#LRDIoftheDay #38

Arrangements. Slightly easy one for today.

Link to the set: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-38/>

Five actors – Tiger, Varun, Siddharth, Sushant and Sooraj were ranked in two aspects: Acting and Dancing, not necessarily in the given order. No two actors got the same rank in any aspect and no person got the same rank in both the aspects. We have the following additional information.

- I) The number of actors who got a better rank than Sushant in Dancing is the same as the number of actors who got a better rank than Sooraj in Acting
 - II) Tiger got a better rank than Siddharth in at least one aspect
 - III) Varun's rank in Dancing is better than his rank in Acting
 - IV) In Acting, Sooraj got a better rank than Sushant
 - V) The sum of the ranks of Siddharth is 4 and the sum of the ranks of any other person is not 4
 - VI) The rank of Varun in one aspect is the same as the rank of Sushant in the other aspect
1. Who got the fifth rank in Dancing?
 2. What is the rank of Sooraj in Acting?
 3. How many actor/s got a better rank than Sushant in both the aspects?
 4. What is the sum of the ranks of Sushant and Sooraj in Dancing?

#LRDIoftheDay #39

Complex tables

View the set here: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-39/>

With almost all the tests looking copies of each other, one of the top institutes in the country decided to conduct an Unconventional Aptitude Test consisting of five sections:

Mathematical Ability (MA), Verbal Ability (VA), Logical Ability (LA), Decision Making Ability (DA) and General Ability (GA)

Mr. Nemo Nobody underwent the test as a test candidate and got the following result.

(Table 1)

i) It is known that there marking scheme is such that there is one mark for each right answer and one-third of a mark is deducted for each wrong answer. Also, to penalize conservative candidates, there is a negative marking of one-sixth of a mark per un-attempted question

ii) A total of 67 marks were scored by Mr. Nobody and there were a total of 125 attempts

iii) The number of wrong answers in DA is $\frac{1}{6}$ th of the total number of wrong answers and is double of that in VA

iv) The score in VA is double that in LA

If for any question, you cannot determine the answer uniquely, put a 0 in the text box

1. In which section does Mr. Nobody has the most number of wrong answers? (Mention the code for the particular section)

2. How many marks did Mr. Nobody lose because of incorrect answers?

3. How many questions were attempted by Mr. Nobody in the VA section?

4. What was Mr. Nobody's score in GA?

| Section | Total questions | Attempts | Right | Wrong | Score |
|---------|-----------------|----------|-------|-------|-------|
| MA | 35 | 29 | | | |
| VA | 30 | | | | |
| LA | 35 | 17 | | 6 | |
| DA | 40 | | | | 11 |
| GA | 45 | | 30 | | |

#LRDIOftheDay #40

Slightly easier one for today considering that the first major result was out earlier 😊:)

The Formula One Drivers' Championship entered an interesting format wherein, the top 9 drivers were participating to decide the best of the best. Each race had 5 drivers participating in it, the first race had the top 5 drivers in accordance to the table, the next race had drivers from 2 to 6, the third race had drivers from 3 to 7 and so on. The winner of each race got 5 points, the runner-up got 3 points and the third placed driver got 1 point. Also, Lewis Hamilton was the only driver who scored points in two consecutive races.

At the end of the tournament, the final standings were as follows.

(Table 1)

If you cannot determine the answer to a question uniquely, put a 0 in the text box.

1. What was the rank of Fernando Alonso in the fourth race?
2. What is the difference between the points scored by Felipe Massa and Daniel Ricciardo in the fifth race?
3. In which race did Sergio Perez bag the third position?
4. If Sebastian Vettel had scored 6 points and Felipe Massa had scored 7 points while the rest of the drivers scored the same number of points as has been given, in at most how many races would Felipe Massa have bagged the second position?

| Driver | Points |
|------------------|--------|
| Max Verstappen | 5 |
| Kimi Raikkonen | 5 |
| Sebastian Vettel | 8 |
| Sergio Perez | 2 |
| Felipe Massa | 5 |
| Fernando Alonso | 6 |
| Daniel Ricciardo | 4 |
| Lewis Hamilton | 10 |
| Esteban Ocon | 0 |

#LRDIoftheDay #41

Link to today's set: <http://learningroots.in/cat-and-om.../lrdi/lr-di-of-the-day-41/>

Another one on overlapping logic. We had solved a milder one here: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-32/>

In a school that had classes from 5th standard to 10th standard, the number of students in each standard in the years 2015, 2016 and 2017 is shown in the table. Students join the school only in 5th standard and do not leave the school until they pass their 10th standard exams. The students who fail in a particular year have to study in the same standard the next year as well while those who pass go through to the next higher standard. No student failed in the same standard more than once and the pass percentage of 10th standard is 100% over the years given.

(Table 1)

1. How many students failed in the exams held in 2015?
2. Which standard had the lowest pass percentage in the year 2015? (Write your answer in the form of the number of the standard; for example, if it is the 4th standard, mark 4 as your answer)
3. What is the difference between the number of students who joined the school in 2016 and those who joined the school in 2017?
4. What was the overall pass percentage of the school in the year 2016? (Answer should be accurate to 1 place after the decimal; for example, if it is 98.56, mark 98.6 as your answer)
5. For how many standards was the number of students who failed in 2016 more than the corresponding value in 2015?

| | 2015 | 2016 | 2017 |
|------|------|------|------|
| 5th | 56 | 57 | 62 |
| 6th | 43 | 52 | 53 |
| 7th | 56 | 50 | 56 |
| 8th | 55 | 52 | 50 |
| 9th | 48 | 51 | 48 |
| 10th | 40 | 45 | 42 |

#LRDIoftheDay #42

Link to the set: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-42/>

A set that is a replica of another that appeared in CAT a decade and a half back

Five players Shikhar (S), Rohit (R), Virat (V), Manish (M) and Kedar (K) scored all the runs in a low-scoring 3-match series against the West Indies. We know the runs scored by the top 3 players in each match and the percentage of the total score that was contributed by these top 3 players in each match.

(Table 1)

No two batsmen scored the same number of runs in a match and no player scored the same number of runs in any two matches. When it came to evaluating the performance of the players post the series, two indices were used: the RD-index which was the difference between the highest score of a player and the least score of a player in the series and the ST-index which was the median score of a player in the tournament.

1. What is the minimum number of runs scored by Manish in the series?
2. For how many players can we calculate the exact ST-index?
3. At least how many players scored less than 135 runs in all the three matches together?
4. What will be the best value of the RD-index (which means the least numerical value) for any player in the series?

| | | | | |
|---------|--------|--------|--------|-----|
| Match 1 | 60 (K) | 57 (M) | 48 (S) | 75% |
| Match 2 | 64 (R) | 55 (V) | 49 (K) | 70% |
| Match 3 | 54 (S) | 49 (R) | 44 (M) | 70% |

#LRDIoftheDay #43

A tough one for today

Link to the set: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-43/>

Angry Masterji has assigned roll numbers 2, 3, 4, 5 and 6 to five of his students viz. Bhuvan, Banchod Das, Sameer, Hola and Bablu not necessarily in that order. He decides to do a fun activity while conducting roll calls and calls out a random number in a round and does this over seven rounds with a different number called in each round. The students who have a roll number that is the factor of the random number called answer with a 'Yes' and the ones who do not have a factor of the random number called answer with a 'No'. The following facts are known:

- The sum of the seven random numbers is 100 and each of them is greater than 2
- The sum of the numbers called in Round 1 and Round 2 is 30
- Angry Masterji does not call out the numbers 6 and 7
- Exactly one of the called numbers is less than 10

The table that is formed at the end of the activity looks as follows:

(Table 1)

If the answer to any question cannot be determined uniquely, type 0 in the text box.

- What is the number called in Round 3?
- What is the number called in Round 4?
- What is the number called in Round 5?
- What is the number called in Round 6?

| | Round 1 | Round 2 | Round 3 | Round 4 | Round 5 | Round 6 | Round 7 |
|-------------|---------|---------|---------|---------|---------|---------|---------|
| Bhuvan | No | No | Yes | No | No | Yes | No |
| Banchod Das | Yes | Yes | No | No | Yes | Yes | Yes |
| Sameer | No | Yes | No | No | Yes | No | No |
| Hola | Yes | Yes | No | No | Yes | No | No |
| Bablu | Yes | Yes | No | No | Yes | No | No |

#LRDIoftheDay #44

A replica of probably the toughest set of CAT 2016 Slot 2

Link to the set: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-44/>

Four experts A, B, C and D rated 3 features F1, F2, and F3 each for two products P1 and P2 giving integer ratings between 1 and 10. Table 1 lists a triplet each comprising minimum, average and maximum rating given by each expert for each feature across products. Table 2 lists the minimum and maximum rating given by each expert to individual products across features. Table 3 lists average of ratings given to each feature by each expert across products.

(Table 1)

(Table 2)

(Table 3)

1. What was the expert rating given to F2 of P1 by C?
2. What was the expert rating given to F3 of P2 by D?
3. What was the expert rating given to F1 of P1 by B?
4. What was the expert rating given to F3 of P2 by A?

| | F1 | F2 | F3 |
|----|-------------|---------------|--------------|
| P1 | (3, 6.5, 9) | (4, 6.25, 10) | (2, 5.75, 9) |
| P2 | (8, 9, 10) | (4, 7.25, 9) | (1, 5.75, 8) |

| | P1 | P2 |
|---|---------|---------|
| A | (3, 7) | (4, 9) |
| B | (4, 9) | (1, 8) |
| C | (2, 9) | (7, 9) |
| D | (6, 10) | (7, 10) |

| | F1 | F2 | F3 |
|---|-----|-----|-----|
| A | 6 | 5.5 | 7 |
| B | 6.5 | 6 | 5 |
| C | 9 | 6.5 | 4.5 |
| D | 9.5 | 9 | 6.5 |

#LRDIoftheDay #45

Link to the set: <http://learningroots.in/cat-and-omet/lr-di-of-the-day-45/>

Felonius Gru has 15 different Rubik's cubes C1 through C15. The cubes are classified into three categories based upon their number of layers. C1, C15, C13 and C4 are of 8 layers each. C6, C2, C7, C9 and C14 are of 6 layers each and the remaining cubes are of 10 layers each. He selects five out of these fifteen cubes on eight consecutive days. On each day he tries to solve the selected cubes but is successful in solving only one of the selected cubes. If he solves a cube on a particular day, that cube is not selected by him on the subsequent days. It is also known that out of the cubes solved by him, the number of cubes of 6 layers is less than the number of cubes of 8 layers.

The following table gives details about the cubes selected by him on each of the given eight days.

(Table 1)

1. For how many days is it possible to uniquely determine which cube is solved by Gru?
2. If Gru wants the aggregate number of layers of all the cubes that he solves in these 8 days to be the minimum then the number of layers of the cube solved on day 7 is
 - a. 6
 - b. 8
 - c. 10
 - d. Either 6 or 10
3. After Day 8 Gru finds that the aggregate number of layers of all the cubes that he has solved is more than 64 but not more than 68. Which of the following cubes is definitely solved by Gru?
 - a. C15
 - b. C13
 - c. C10
 - d. Cannot be determined
4. After Day 8 Gru finds that the aggregate number of layers of all the cubes that he has solved is more than 64 but not more than 68. If C9 is not solved and C8 is solved by Gru, then which of the following can be a cube that is solved by him?
 - a. C14
 - b. C5
 - c. C11
 - d. C2

| | | | | | |
|---------|-----|-----|-----|-----|-----|
| 1st Day | C1 | C7 | C8 | C4 | C11 |
| 2nd Day | C3 | C15 | C14 | C12 | C8 |
| 3rd Day | C2 | C7 | C15 | C9 | C10 |
| 4th Day | C15 | C13 | C10 | C3 | C6 |
| 5th Day | C2 | C15 | C9 | C10 | C5 |
| 6th Day | C13 | C6 | C1 | C8 | C10 |
| 7th Day | C14 | C11 | C8 | C2 | C13 |
| 8th Day | C5 | C6 | C10 | C14 | C11 |

#LRDIoftheDay #46

A set on combinations

Mr. Incredible, in a fit of rage damaged his office premises. An enquiry followed and it was decided that he would have to repair the damage done. As a part of this ordeal, he had to visit the market to get 5 kg of cement. He found out that there were 10 shops selling a different variety of cement and that each seller had a fixed quantity with him/her and a buyer was supposed to either buy the entire amount or not buy anything. The following tables provide information about the cost price (in Rs/kg) and the total worth (in Rs.) of the cement in each of the 10 shops.

(Table 1)

1. How many distinct combinations of shops exist from which Mr. Incredible can buy 5 kg of cement?
 2. What can be the minimum possible amount (in Rs.) Mr. Incredible must pay to buy 5 kg of cement?
 3. If the cost price of the cement at shop number 10 is reduced by Rs.11 per kg (the amount of cement at shop number 10 remains the same), then what is the difference between the maximum and the minimum amount Mr. Incredible can pay to buy 5 kg of cement?
 4. Which of the following statement(s) is/are definitely true?
 - I. If Mr. Incredible buys cement from shop numbers 1, 3 and 9, then he will have to pay the maximum amount to buy 5 kg of cement.
 - II. If Mr. Incredible buys cement from shop number 3, then he will have to buy cement from shop numbers 4 and 9 as well.
- a. Only I
b. Only II
c. I and II
d. Neither I nor II

| Shop No. | Cost per kg. | Total cost |
|----------|--------------|------------|
| 1 | 40 | 24 |
| 2 | 35 | 35 |
| 3 | 40 | 28 |
| 4 | 60 | 33 |
| 5 | 45 | 36 |
| 6 | 65 | 39 |
| 7 | 50 | 20 |
| 8 | 28 | 56 |
| 9 | 32 | 24 |
| 10 | 36 | 36 |

#LRDIoftheDay #47

Link to the set: <http://learningroots.in/cat-and-om.../lrdi/lrdi-of-the-day-47/>

In cricket, the term batting average gives an indication of how many runs a batsman has scored per innings in which he was dismissed. So, the batting average is given by the formula: $(\text{Total runs scored} / \text{Number of times the player was out})$

For a particular player, the data for the last 25 matches that he batted in has to be considered. The following facts are known:

- i. He was dismissed in each of the matches that he batted in
 - ii. The runs scored by him in any two matches is not same
 - iii. The sum of his five highest scores is 337
1. If the sum of his lowest five scores was 121, what would be the highest average possible?
 2. If the sum of his lowest five scores was 121 and his average was more than 40, what is the maximum number of matches in which he scored less than 40?
 3. If the sum of his lowest five scores was 121, what is the minimum possible value of his sixth highest score?
 4. If he scored 2 centuries in these 25 matches, what is the maximum possible value of his lowest score?

#LRDIoftheDay #48

Easy one for today

Link to the set: <http://learningroots.in/cat-and-omet/lrdi-of-the-day-48/>

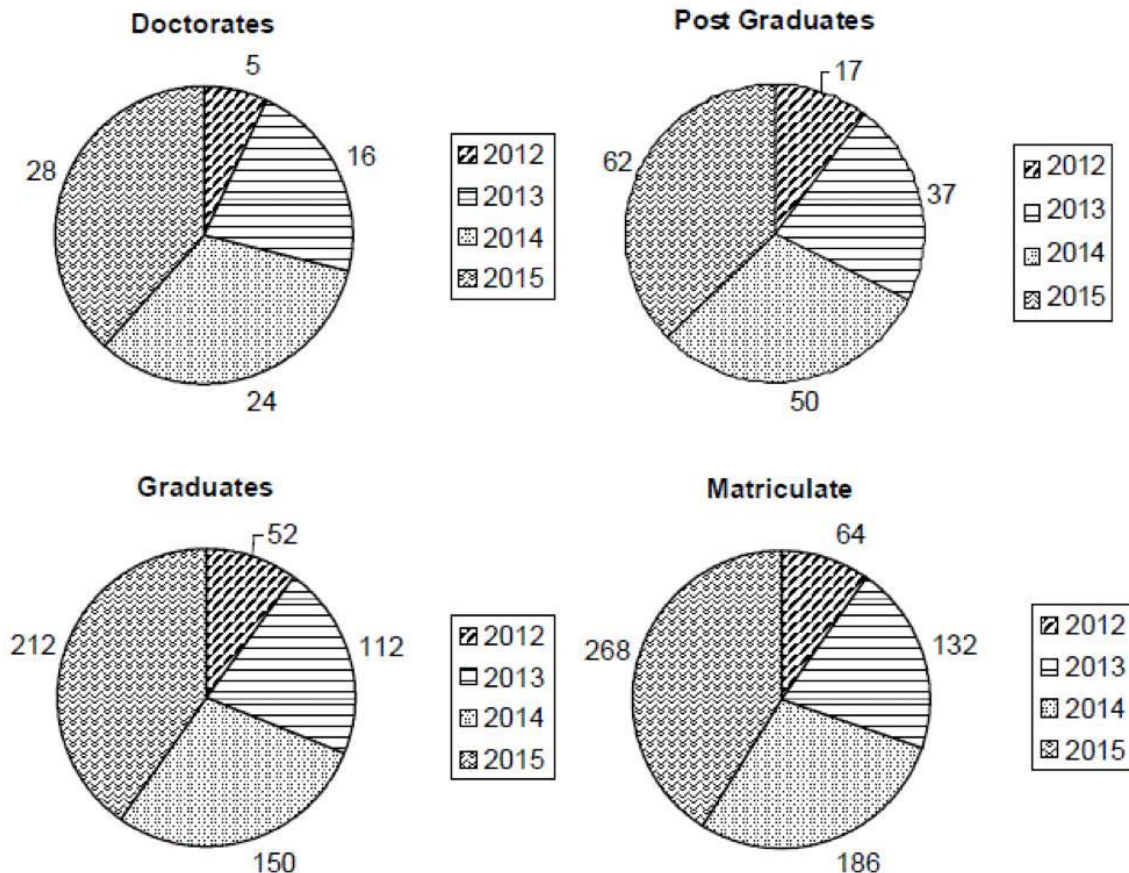
The following pie charts give the number of employees at UltraTech at the end of the year for the period 2012 to 2015. The charts also capture the education qualification of the employees. UltraTech does not employ people who are not at least matriculates and once a person gets recruited, he cannot pursue further education. It is also known that no employee of the company left the job during the given period.

(Chart 1)

NOTE: It is necessary for a doctorate to be a post graduate, for a post graduate to be a graduate and for a graduate to be a matriculate. This means that the number of matriculates also include those who went on to do their graduation, post graduation, doctorates. Similar is the case for the numbers of graduates and post graduates. If the answer to any question cannot be uniquely determined, type in 0 as your answer.

1. How many graduates joined UltraTech in the year 2014?
2. How many post graduates who were not doctorates joined UltraTech in 2014 and 2015 put together?
3. How many employees joined UltraTech in the year 2013?
4. What was the absolute difference between the number of doctorates who joined Ultra Tech in the year 2013 and 2015?

Number of Employees at the end of the year.



#LRDIoftheDay #49

QC: (Need I say more about the LOD? 😊) Similar to a CAT 2015 question on overlapping data

A company started manufacturing solar power generators in the year 2008. The panels that are used in the generators can be used for exactly one year post which, they have to be discarded. The company provides panels, free of cost, for the first two years in which they have to be replaced. After that, panels brought from the company cost Rs. 2000 while third party vendors provide them for Rs. 1500. Every year, 30% of the customers buy the panels from the company while the rest settle for the cheaper alternative. A partial table gives an account of the replacements that were made by the company and the third party vendors for the years 2012 to 2016. Assume that all the solar generators manufactured in the year 2008 are operating currently.

(Table 1)

If for any question, the answer cannot be determined uniquely, mark 0 as your answer.

1. How many solar power generators were sold in the year 2013?
2. How many solar power generators were sold from 2008 to 2010?
3. In 2012, how many panels did the company sell or replace?
4. How many solar power generators were sold in 2010?

| Replaced by | Company | Third Party |
|-------------|---------|-------------|
| 2012 | | 840 |
| 2013 | | 1610 |
| 2014 | | 2170 |
| 2015 | 3900 | 2800 |
| 2016 | 4460 | 3640 |

<http://learningroots.in/cat-and-omet/lrdi/recommended-books-for-data-interpretation-and-logical-reasoning/>

<http://learningroots.in/cat-and-omet/lrdi/how-to-approach-logical-reasoning-questions/>

<http://learningroots.in/cat-and-omet/lrdi/cracking-di-lr-in-cat/>

<http://learningroots.in/cat-and-omet/lrdi/tournament-based-di-sets-part-i/>

<http://learningroots.in/cat-and-omet/lrdi/tournament-based-di-sets-i-cat-2008/>

<http://learningroots.in/cat-and-omet/quant/how-to-count-cases-qa-di-basics/>

<http://learningroots.in/cat-and-omet/lrdi/a-game-of-sticks/>

<http://learningroots.in/cat-and-omet/lrdi/cat-traps-i-data-sufficiency/>

<http://learningroots.in/cat-and-omet/lrdi/cat-traps-ii-di/>

<http://learningroots.in/cat-and-omet/knockout-tournaments-based-questions-for-cat-2016-lrdi/>

<http://learningroots.in/cat-and-omet/lrdi/tournaments-based-questions-cat-2016-part-3-round-robin/>

<http://learningroots.in/cat-and-omet/minimum-number-weights-required-using-powers-2-3/>

<http://learningroots.in/cat-and-omet/venn-diagrams-based-maxima-minima-questions-cat-2016/>

<http://learningroots.in/cat-and-omet/cat-2016-last-lap-preparation-sprint-series/>

<http://learningroots.in/cat-and-omet/cat-2016-sprint-preparation-series-lrdi-1/>

<http://learningroots.in/cat-and-omet/cat-2016-sprint-preparation-series-lrdi-2/>

<http://learningroots.in/cat-and-omet/cat-2016-sprint-preparation-series-lrdi-3/>

<http://learningroots.in/cat-and-omet/cat-2016-sprint-preparation-series-lrdi-4/>

<http://learningroots.in/cat-and-omet/cat-2016-sprint-preparation-series-lrdi-5/>

<http://learningroots.in/cat-and-omet/snap-2016-sprint-preparation-series/>

<http://learningroots.in/cat-and-omet/lrdi-of-the-day-1/>