APTI PLUS
Academy for Civil Services Pvt. Ltd.
CREATING CIVIL SERVANTS FOR THE NATION

ANSWER OF OCS (2024)
PRELIMINARY EXAMINATION (GS-II)

1. Answer: D
Explanation:
Series: 8, 22, 8, 28, 8, ...
Notice the pattern:
The number 8 repeats at every alternate position (1st, 3rd, 5th…).
The other numbers (22, 28, ...) seem to be increasing.
Looking at the non-8 numbers: 22, 28, …
Difference = 28 − 22 = 6
So the next non-8 number should be: 28 + 6 = 34

2. Answer: C
Explanation:
Series: SCD, TEF, UGH, _
Look at the first letters: S, T, U
Pattern: S → T → U (increasing by 1 in the alphabet)
Look at the second letters: C, E, G
Pattern: C → E → G (increasing by 2 in the alphabet)
Look at the third letters: D, F, H
Pattern: D → F → H (increasing by 2 in the alphabet)
Following the same patterns for the next set:
First letter: U → V
Second letter: G → I
Third letter: H → J
So the next term is: VIJ
Answer: VIJ

3. Answer: A
Explanation:
For numbers in the form a ·x, b ·x, c ·x, their LCM = (a ·b ·c) ·x (since a, b, c are coprime).
Here, 3, 4, 5 are coprime. So:
LCM = 3 × 4 × 5 × x = 60x
We are given LCM = 2400, so:
60x = 2400
x = 2400 ÷ 60 = 40

4. Answer: A
Explanation:
1 percent = 1/100 = 0.01
Half of 1 percent = 0.01 ÷ 2 = 0.005
Answer: 0.005

5. Answer: A
Explanation:
There are 6 males and 4 females.
Handshakes among same gender
Handshakes among males = 6C2 = 6×5/2 = 15
Handshakes among females = 4C2 = 4×3/2 = 6
Total handshakes = 15 + 6 = 21
Hugs between opposite genders
Hugs = 6 males × 4 females = 24
Total interactions (handshakes + hugs)
Total = 21 + 24 = 45

6. **Answer: A**
Explanation:
Given production values are for the years:
1988-89: 200
1989-90: 400
1990-91: 600
1991-92: 900
1992-93: 800
1993-94: 1000
1994-95: 1200
First, let's calculate the percentage increase every year compared to the previous year.
For any year, percentage increase = (Increase from previous year / Previous year value) * 100
Stepwise calculations:

1. 1989-90 vs 1988-89:
   Increase = 400 - 200 = 200
   Percent increase = (200 / 200) * 100 = 100%
2. 1990-91 vs 1989-90:
   Increase = 600 - 400 = 200
   Percent increase = (200 / 400) * 100 = 50%
3. 1991-92 vs 1990-91:
   Increase = 900 - 600 = 300
   Percent increase = (300 / 600) * 100 = 50%
4. 1992-93 vs 1991-92:
   Increase = 800 - 900 = -100
   Percent increase = (-100 / 900) * 100 ≈ -11.11%
   (This is a decrease.)
5. 1993-94 vs 1992-93:
   Increase = 1000 - 800 = 200
   Percent increase = (200 / 800) * 100 = 25%
6. 1994-95 vs 1993-94:
   Increase = 1200 - 1000 = 200
   Percent increase = (200 / 1000) * 100 = 20%

Year with highest percent increase
The highest percent increase is 100% in 1989-90.

7. Answer: D
Explanation:

Year with lowest percent increase (excluding the year with negative/decrease, since the question asks for lowest "increase"). The values (excluding the negative value) are: 50%, 50%, 25%, 20%. The lowest is 20% in 1994-95.

8. **Answer: D**
Explanation:
Right angle triangles with sides 5, 12, 13..area is 0.5xbxh=30
Area for second is 84=0.5x7xp. This implies p is 24.

9. **Answer: D**
Explanation:
A cube painted on all faces is cut into 125 smaller cubes.
Find the dimensions of the small cubes:

125 = 5 × 5 × 5, so the cube is divided 5 layers along each edge.
Cubes not painted on any face
These are the inner cubes, not touching the surface.
Number of inner cubes = $(5-2)^3 = 3^3 = 27$
Answer (no face painted): 27

10. **Answer: D**
Explanation:
Cubes painted on exactly one face
These are the face-center cubes on each face.
On each face, the inner cubes (not on edges) = $(5-2)^2 = 3^2 = 9$
Total faces = 6 → 6 × 9 = 54
Answer (one face painted): 54

11. **Answer: A**
Explanation:
The safest and most responsible approach in such a situation is to treat every threat as real until verified. Following proper procedure is crucial to ensure public safety.
Correct action: Immediately inform the Police, ask them for instructions on how to handle the situation, and act accordingly.
Do not enter the hall or announce anything without guidance from authorities, as it could endanger yourself and others.
Do not ignore the threat, even if previous threats were fake.

12. **Answer: C**
Explanation:
Let the present age of Mr. Sanyal be S and his son be s.
Given that Mr. Sanyal is three times his son's age: S = 3s
Six years hence, the ratio of their ages will be 5:2: (S + 6) / (s + 6) = 5 / 2
Substitute S = 3s into the ratio: (3s + 6) / (s + 6) = 5 / 2
2(3s + 6) = 5(s + 6)
6s + 12 = 5s + 30
6s − 5s = 30 − 12
s = 18
Mr. Sanyal's age: S = 3s = 3 × 18 = 54

13. **Answer: A**
Explanation:
1 is on one side of the cube.
Adjacent to 1: 2 and 4
Adjacent to 2: 1, 3, 5
Adjacent to 4: 3, 1, 6
Now, matching corners while folding:
1 is adjacent to 2 and 4.
On folding, the face directly opposite to 1 is 3.
Therefore, the number opposite to 1 in the cuboid is 3.

14. **Answer: A**
Explanation:
Only I and III are sufficient.
From statements I & III the only valid arrangement is:

A = 6, B = 2, C = 5, D = 3, E = 1, F = 4, G = 7.

So F lives on the 4th floor.

(Checks: I alone, II alone or III alone do not fix F; I+II and II+III give no valid arrangement, while I+III yield the unique solution above.)

15. **Answer: D**
Explanation:
Statement I alone:
S west of V
S south of U
U west of W
From this alone, S is southwest relative to W.
Statement II alone:
T west of U, southeast of V
V north of S, east of W
Here W → S can be southeast.
Statement III alone:
W south of V, north of T
T west of S
Here, W is northwest of S.

16. **Answer: A**
Explanation:
Look at each row: take the concatenation of the first and second numbers (write them side by side) and subtract their product.
Row 1: concatenate 8 and 3 → 83.
Product 24..DIFFERENCE IS 59
Row 2: concatenate 6 and 5 → 65.
Product 30..Difference is 34
Row 3: concatenate 12 and 2 → 122.
Product 24..difference is 98

17. **Answer: A**
Explanation:
Number of students who failed English = 20 − 15 = 5
Number of students who failed Mathematics = 20 − 18 = 2
Maximum number of students who could fail both = minimum of (failed English, failed Math) = min(5,2) = 2
But can there be a student who failed both? Yes, at most 2 students could fail both.
Total students failing at least one = failed English + failed Math − students failing both ≤ 5 + 2 − 2 = 5
Total students = 20, passed at least one = 20 − students failing both ≥ 20 − 2 = 18
So inference II "No student failed in both subjects" is possible but not necessarily true. Some student(s) could fail both. So II is not necessarily true.

Check inference I (There are few students who passed in both subjects)
Let x = number of students who passed both subjects
Using the formula for union: Passed English or Math = 15 + 18 − x
This must be ≤ total students: 15 + 18 − x ≤ 20 ⇒ 33 − x ≤ 20 ⇒ x ≥ 13
So at least 13 students passed in both subjects.
"There are few students who passed in both" would suggest a small number, but here at least 13 out

of 20 passed both ⇒ this is not few.
Conclusion:
Inference I: Incorrect
Inference II: Incorrect

18. **Answer: A**
Explanation:
Statement: Due to the rapid increase in the pandemic, most of the states are locked down.

Check inference I (The pandemic is dangerous)
The statement says there is a rapid increase in the pandemic and states are being locked down.
Lockdowns are implemented for dangerous situations.
So it is reasonable to infer that the pandemic is dangerous.

Check inference II (The pandemic will spread rapidly)
The statement mentions rapid increase in the pandemic.
This indicates that it has already been spreading rapidly, and thus states are in lockdown.
So inference II is true.

19. **Answer: C**
Explanation:
B.Ed. fees in 2006: 11.6
B.Ed. fees in 2007: 13.9
Percentage increase from 2006 to 2007
Percentage increase formula:
[(New value - Old value) / Old value] × 100
Applying values: Difference = 13.9 - 11.6 = 2.3
Percentage increase = (2.3 / 11.6) × 100
2.3 / 11.6 ≈ 0.1983
0.1983 × 100 ≈ 19.83%
Approximate value is closest to 20%.

20. **Answer: B**
Explanation:
M.Sc. fees in all years:
2005: 5.8
2006: 6.4
2007: 10.2
2008: 14.6
2009: 17.7
2010: 20.9
Sum = 5.8 + 6.4 + 10.2 + 14.6 + 17.7 + 20.9

Average = Total / Number of years = 75.6 / 6 = 12.6

21. **Answer: D**
Explanation:
M.Phil. fee in 2008: 12.7
M.Sc. fee in 2009: 17.7
Percentage = (12.7 / 17.7) × 100
0.717 × 100 ≈ 71.8%

22. **Answer: D**

Explanation:

In all the rows, to the right most figure, new objects are added in the middle column and then the first figure is removed in the left most column. So, X figure is the answer

23. **Answer: C**

Explanation:

1. B is second to the left of A.
2. C is opposite B.
3. D is between C and E.
4. F is not a neighbor of A.

Place B relative to A

They are facing the center, so left is counterclockwise.

B is second to left of A, so there is one person between A and B counterclockwise.

Assume A at position 1.

Second to left of A (counterclockwise) is position 5. So B is at position 5.

C is opposite B

B is at position 5, opposite position = 2. So C is at position 2.

D is between C and E

C is at 2, so D must be next to C, and E on the other side of D.

Possible placements: C-D-E = 2-3-4 or 2-1-6.

A is at 1, so D cannot be at 1. So D = 3, E = 4.

F is not neighbor of A

A at 1, neighbors = 6 and 2

2 is C, so F cannot be 2

Remaining position = 6, so F = 6

A at position 1, opposite position = 4. So E is opposite A

24. **Answer: B**

Explanation:

Original counts

Total English alphabets = 26

Vowels = 5 (A, E, I, O, U)

Consonants = 21

Consonants increased by 57.14%

57.14% ≈ 4/7 (since 57.14 ÷ 100 ≈ 0.5714 ≈ 4/7)

Increase in consonants = 21 × 4/7 = 12

New number of consonants = 21 + 12 = 33

Number of new consonants = number of new vowels

New consonants added = 12 → new vowels added = 12

Current number of vowels = 5 + 12 = 17

Current number of consonants = 33

Calculate further increase needed in vowels to match consonants

Consonants = 33, vowels = 17

Let percentage increase required for vowels = x%

Equation: 17 × (1 + x/100) = 33

1 + x/100 = 33 / 17 ≈ 1.9412

x/100 = 0.9412

25. **Answer: B**

Explanation:

In the mirror image, objects to the right will be at left and vice versa. Option b is correct as a result

26. **Answer: D**
Explanation:
Algorithm: A step-by-step procedure to solve a problem.
Trial and Error: Trying different solutions until one works.
Heuristics: A mental shortcut or rule of thumb to solve problems efficiently.
Anagrams: Rearranging letters of words to form new words; this is a word game, not a general problem-solving method.

27. **Answer: D**
Explanation:
For State B:
Population is not given, but number of literates = 10,000, illiterates = 15,000
Total population in State B = 10,000 + 15,000 = 25,000
Percentage of illiteracy in state B
= (Number of illiterates / Total population) × 100
= (15,000 / 25,000) × 100
= 0.6 × 100
= 60%

28. **Answer: D**
Explanation:
Population in State A is greater than population in State B by
State A: 50,000
State B: 25,000
Increase = State A population - State B population= 50,000 - 25,000 = 25,000
Percentage greater = (Increase / State B population) × 100= (25,000 / 25,000) × 100
= 1 × 100 = 100%

29. **Answer: A**
Explanation:
State A: 50,000
State C: 60,000
Difference = 60,000 - 50,000 = 10,000
Percentage = (Difference / State C) × 100
= (10,000 / 60,000) × 100
= 0.1667 × 100
= 16.67%

30. **Answer: B**
Explanation:
The process of judging some problem situation on the basis of its similarity with one encountered earlier, is known as
This is definition of "Heuristics of representativeness"

31. **Answer: B**
Explanation:
Number of small cubes per side = 15 / 3 = 5
Total small cubes = 5^3 = 125
Cubes painted on all three sides are at the corners: Each cube has 8 corners.
So 8 cubes painted on 3 sides.

Cubes painted on two sides: Each edge (excluding corners)
Each edge: 5 cubes per edge minus 2 corners = 3 per edge × 12 edges = 36
So, difference = 36 - 8 = 28

32. **Answer: C**
Explanation:
Formula = (n(n+1)(2n+1))/6 for squares of all sizes
But for 8×8 chessboard:
Total squares = sum of squares of numbers from 1 to 8
$= 1^2 + 2^2 + ... + 8^2$
= 1 + 4 + 9 + 16 + 25 + 36 + 49 + 64
= 204

33. **Answer: C**
Explanation:
The ratio of production of Maize in 2011 and 2012 is:
2011 : 2012 = 700 : 220 or 35: 11

34. **Answer: C**
Explanation:
Jawar in 2012 = 440, Maize in 2012 = 220, and 440 = 2 × 220 (i.e., Jawar is 100% greater than Maize only in 2012).

35. **Answer: C**
Explanation:
Analyze Sunanda's actions
She noticed Rabindra's discomfort.
She asked a clarifying question to Abhilas instead of outright agreeing or disagreeing.
She steered the conversation toward collaborative problem-solving and offered help.
This demonstrates empathy and active listening, not simply leadership or being systematic.

36. **Answer: B**
Explanation:
Analyze Abhilas communication style
He immediately blamed Rabindra without understanding the specifics.
His tone dismissed Rabindra's explanation and could make him feel defensive.
This is aggressive, not assertive, because it attacks rather than constructively addresses the problem.

37. **Answer: C**
Explanation:
Divide 98 by 2
98 ÷ 2 = 49 remainder 0
49 ÷ 2 = 24 remainder 1
24 ÷ 2 = 12 remainder 0
12 ÷ 2 = 6 remainder 0
6 ÷ 2 = 3 remainder 0
3 ÷ 2 = 1 remainder 1
1 ÷ 2 = 0 remainder 1
Write remainders from last to first
Binary = 1100010

38. **Answer: C**
Explanation:

39. **Answer: C**
Explanation:
Appreciation of the Japanese
The passage notes that Japanese products in the fifties were derided as substandard.
But Japan emerged as an economic superpower through dogged pursuit of goals and raising quality standards.
This shows the author appreciated the Japanese for their perseverance in raising the quality of products.

40. **Answer: B**
Explanation:
The passage discusses issues Japanese investors face in India, such as profit repatriation, policy continuity, and restrictive controls.
It also suggests India needs to meet international standards to attract investment.
The purpose is to critically examine the Indian investment environment and highlight what needs improvement.

41. **Answer: C**
Explanation:
The passage states: "though labour in India is expensive, wage-levels are offset by productivity level to a large extent." So the comparative advantage is higher productivity, not inexpensive labour.

42. **Answer: D**
Explanation:
The passage highlights:
- Japan passed through a stage in the fifties when products were derided as substandard (overcame ordeal)
- Dogged pursuit of goals against odds (tenacity and perseverance)
- Emerged with globally acceptable standards (adapted to quality standards)

So all three points I, II, III are correct.

43. **Answer: B**
Explanation:
Robert's position: 10th from left, 6th from right
Total students = 10 + 6 − 1 = 15
Stephen is 3rd to the left of Robert → left means toward the left end
Robert is 10th from left → Stephen's position from left = 10 − 3 = 7
Position from right = Total − Position from left + 1 = 15 − 7 + 1 = 9

44. **Answer: A**
Explanation:
Jessica has 4 children.
2 children have blue eyes, 2 have brown eyes.
Half of the children are girls → 2 girls and 2 boys.
Statements:
I. At least one girl has blue eyes
Could the 2 girls have brown eyes and the 2 boys have blue eyes?
Yes, that's possible.
So I is not necessarily true.
II. Two of the children are boys

Already given: half of the children are girls → 2 girls, so the other 2 must be boys.
II must be true.

III. The boys have brown eyes
Could one boy have blue eyes and one have brown?
Yes, that's possible.
So III is not necessarily true.

45. **Answer: D**
Explanation:

All chickens are birds.
Some chickens are hens.
Female birds lay eggs.

Statements:
I. All birds lay eggs
Only female birds lay eggs, not all birds.
So this is not necessarily true.
II. Hens are birds
Some chickens are hens, and all chickens are birds.
Therefore, some hens (being chickens) are birds but not all might be a possibility.
Not True
III. Some chickens are not hens
"Some chickens are hens" does not guarantee that all chickens are hens.
Therefore, it is possible that some chickens are not hens.
This must be true if we take "some" in the standard logical sense (some but not all).

46. **Answer: C**
Explanation:
Given facts:
Pictures can tell a story.
All storybooks have pictures.
Some storybooks have words.
Statements:
I. Pictures can tell a story better than words can
The facts only say pictures can tell a story, not that they are better than words.
Not implied
II. The stories in storybooks are very simple
Nothing in the facts indicates the complexity of stories.
Not implied
III. Some storybooks have both words and pictures
All storybooks have pictures
Some storybooks have words
Therefore, the storybooks that have words must also have pictures, so some storybooks have both words and pictures
Implied / True

47. **Answer: B**
Explanation:
Size of the problem: Relevant, as the magnitude affects how we approach it.
Complexity of solution: Relevant, since more complex solutions require more effort and resources.
Organization of problem situation: Relevant, as a well-structured problem situation is easier to

analyze.
Similarity of the problem: Not a defining characteristic of a problem situation; it may help in solving, but it is not inherent to the problem itself.

48. **Answer: B**
Explanation:

All beauty are makeup.
All makeup are product.
Some fake are product.
Conclusions:
I. Some makeup are fake
Only "some fake are product" is given.
There is no guarantee that these fake products overlap with makeup.
Not necessarily true
II. All product are beauty
Only makeup (a subset of product) are beauty.
Other products may not be beauty.
False
III. Some makeup are beauty
All beauty are makeup → there is overlap
True
IV. Some makeup are fake is a possibility
Since some fake are product, and makeup is part of product, it is possible that some makeup are fake. But not always true.

49. **Answer: A**
Explanation:

Pipe A fills in 6 hours → rate = 1/6 per hour
Pipe B fills in 8 hours → rate = 1/8 per hour
Pipe C drains in 12 hours → rate = -1/12 per hour
Combined rate = 1/6 + 1/8 − 1/12
LCM of 6, 8, 12 = 24
Combined rate = (4 + 3 − 2)/24 = 5/24 per hour
Time to fill the tank = 1 ÷ (5/24) = 24/5 hours = 4.8 hours

50. **Answer: C**
Explanation:
Given statements:
Some water is plastic.
No plastic is milk.
Some milk is drink.
Conclusions:
I. All milk are drink
Only "some milk is drink" is given.
There is no information that all milk is drink.
Not necessarily true
II. All drink can be plastic
No information connects plastic and drink.
This is not necessarily true
III. Some water is not milk

Some water is plastic, and no plastic is milk → at least the water that is plastic cannot be milk.
Therefore, some water is not milk is true

51. **Answer: D**
Explanation:
Speculation is assuming something to be true based on inconclusive or limited evidence.
Emily observes her roommate crying (limited evidence) and guesses a family death → this is classic speculation.
The other options involve informed decisions, regret, or research, so they do not fit the definition

52. **Answer: B**
Explanation:
Embellishing the truth involves adding fictitious details or exaggerating facts.
Here, the realtor exaggerates the house's proximity to the ocean to make it sound more desirable than it actually is.
The other options are either opinions (A), truthful statements (C), or conditional statements (D) and do not involve exaggeration.

53. **Answer: B**
Explanation:
The paragraph states that the process often begins with clearly defining the problem. Other steps, such as generating solutions, evaluating alternatives, and implementing a decision, come after the problem has been defined.

54. **Answer: B**
Explanation:
The passage mentions a common pitfall: rushing toward a solution without fully understanding the problem, which often means settling on the first idea.

55. **Answer: B**
Explanation:
The paragraph emphasizes that post-implementation review is crucial for learning and refining future problem-solving.

56. **Answer: C**
Explanation:
The passage states that alternatives should be evaluated based on feasibility, potential impact, and resource requirements, not personal bias or popularity.

57. **Answer: No option matches**
Explanation:
Math (M) = 40
Science (S) = 35
English (E) = 30
Math ∩ Science = 15
Math ∩ English = 12
Science ∩ English = 10
Math ∩ Science ∩ English = 5
Inclusion-Exclusion Formula
Number of students who like at least one = M + S + E − (M∩S + M∩E + S∩E) + (M∩S∩E)
Sum of individual sets: 40 + 35 + 30 = 105
Sum of pairwise intersections: 15 + 12 + 10 = 37
Add the triple intersection: +5

So total = 105 − 37 + 5 = 73

58. **Answer: B**
Explanation:

Parent Generation:

Q (female) P (female) ── married ── Parent Male (male)

Child Generation:

S (male) ── married ── R (female)
U (female) [unmarried]
T (male) [unmarried]

59. **Answer: C**
Explanation:
The correct answer is Used a win-win approach to address the client's desire for a larger discount while securing a more stable, long-term commitment for her own team. Samita offered a creative solution that partially met the client's request (10% discount) while securing a longer-term contract, benefiting both parties.

60. **Answer: C**
Explanation:
The correct answer is Reframing the value proposition to shift the focus from price to unique benefits and long-term partnership. Instead of debating the competitor's lower price, Samita emphasized her company's unique, high-quality services and strategic value, thereby shifting the negotiation away from a purely price-focused discussion.

61. **Answer: C**
Explanation:

The aunt told Nicholas he could not possibly have a frog in his bread-and-milk and that he was talking nonsense, implying he should have eaten it instead of refusing.

62. **Answer: D**
Explanation:

The passage clearly states: "*There really was a frog in Nicholas' basin of bread-and-milk; he had put it there himself.*"

63. **Answer: B**
Explanation:
Nicholas felt vindicated because the aunt had insisted there couldn't possibly be a frog, but there actually was one (his own doing), proving her statement wrong.

64. **Answer:A**
Explanation:
The passage says: "There is little in common, to outward seeming, between the Pathan of the North-West and the Tamil in the far South."

65. **Answer: A**
Explanation:

The passage mentions: "This is not surprising; for these border lands and indeed Afghanistan also, were united with India for thousands of years."

66. **Answer: A**
Explanation:

The passage states: "The old Turkish and other races who inhabited Afghanistan and parts of Central Asia before the advent of Islam were largely Buddhist and earlier still, during the period of the Epics, Hindu."

67. **Answer: B**
Explanation:
The passage highlights that various groups have retained their peculiar characteristics and virtues while being *distinctively Indian, with the same national heritage*.

68. **Answer: C**
Explanation:
The passage notes: "Foreign influences poured in and often influenced that culture and were absorbed. Disruptive tendencies gave immediate birth to an attempt to find a synthesis."

69. **Answer: D**
Explanation:

Starts facing North-West
Turns 90° clockwise → now facing North-East
Turns 180° anticlockwise → now facing South-West
Turns 90° anticlockwise → now facing South East

70. **Answer: B**
Explanation:
"The father of his sister" → X's father
"is the husband of my wife's mother" → my father-in-law → X's father = Y's father-in-law
Therefore, Y is X's son-in-law? Wait, check:
Y's wife's mother → mother-in-law → husband = father-in-law of Y → X's father = Y's father-in-law
→ X is Y's wife's brother → Y is brother-in-law of X

71. **Answer: D**
Explanation:

The letters flipped vertically which makes it option d.

72. **Answer: A**
Explanation:
Two trains crossing each other
Let length of each train = L
Speeds:
- Train 1: L / 12
- Train 2: L / 15

Relative speed (opposite directions) = L/12 + L/15 = (5L + 4L)/60 = 9L/60 = 3L/20
Time to cross each other = Total length / relative speed = 2L / (3L/20) = 2L × 20/(3L) = 40/3 ≈ 13.33 s

73. **Answer: B**
Explanation:

If 20% of x = 30% of y, then: 0.2x = 0.3y → x/y = 0.3/0.2 = 3/2

74. **Answer: None of the options**
Explanation:
Sum of cubes of first 10 odd natural numbers formula:
Sum of cubes of first n odd numbers = $n^2(2n^2 - 1)$
For n = 10: $10^2(2\times10^2 - 1) = 100 \times (200 - 1) = 100 \times 199 = 19900$

75. **Answer: A**
Explanation:
The minute and hour hands form a 90° angle twice an hour. However, this doesn't happen exactly 24 times in 12 hours due to the different speeds of the hands. Instead, they form a 90° angle 22 times in a 12-hour period. The instances around 3:00 and 9:00 are where the count is slightly less than a perfect two per hour. Since the clock face repeats every 12 hours, the number of times the hands form a 90° angle in a full day (24 hours) is simply twice the number of times it occurs in 12 hours. 22 times 2=44

76. **Answer: B**
Explanation
Direction question: P + Q × R ÷ K
P + Q → Q is south of P
Q × R → Q is south of R
R ÷ K → R is west of K
We want Q with respect to K: Q south of R, R west of K → Q is south-east of K

77. **Answer: A**
Explanation
Important characteristic for decisions for socially disadvantaged: Empathy is most important.

78. **Answer: B**
Explanation
Downstream speed = (30 km) / (3 h) = 10 km/h
Upstream speed = (18 km) / (3 h) = 6 km/h
Still-water speed = (Downstream + Upstream)/2 = (10 + 6)/2 = 8 km/h

79. **Answer: B**
Explanation
Statement I: Average age of boys = 15.4, average age of girls = 14.6.
Alone, we cannot determine the overall average because we don't know the number of boys and girls.
Insufficient
Statement II: Ratio of boys to girls = 4:5.
Alone, we cannot determine average ages, only ratio of counts.
Insufficient
Statement III: Number of boys is less than girls by 5.
Alone, we cannot determine average ages.
Insufficient

Combine I + II:
Let total students = 45 (given)
Ratio of boys to girls = 4:5 → 4x + 5x = 9x = 45 → x = 5

So, boys = 4x = 20, girls = 5x = 25
Average age = (sum of boys' ages + sum of girls' ages) / total
= (20×15.4 + 25×14.6)/45
= (308 + 365)/45 = 673/45 ≈ 14.96 years
Can calculate average. Sufficient

Combine I + III:
Boys are 5 less than girls. Let girls = g → boys = g − 5
Total students = 45 → (g − 5) + g = 2g − 5 = 45 → 2g = 50 → g = 25, boys = 20
Average age = same as above → 14.96 years
Sufficient

Combine II + III:
Ratio 4:5 and difference = 5 → check if compatible: Let boys = 4x, girls = 5x → difference = 5x − 4x = x = 5 → total = 4x+5x=45, consistent, but we still don't know average ages, so insufficient

80. **Answer: C**
Explanation
Statement I: Digit in the ten's place is cube of the digit in unit's place.
Unit digit possibilities: 0 → $0^3 = 0$ → not valid
1 → $1^3 = 1$ → number = 11
2 → $2^3 = 8$ → number = 82
3 → $3^3 = 27$ → invalid
4 → 64 → invalid
5 → 125 → invalid
6 → 216 → invalid
7 → 343 → invalid
8 → 512 → invalid
9 → 729 → invalid
Possible numbers: 11, 82
Not unique → Insufficient
Statement II: Digit in ten's place is four times the digit in unit's place.
Unit digit possibilities: 1 → 4×1=4 → 41
2 → 4×2=8 → 82
3 → 4×3=12 → invalid
4 → 16 → invalid
Possible numbers: 41, 82
Not unique → Insufficient
Statement III: Two digits are not equal.
Alone, we have no info on relationship → Insufficient

I + III:
I gives 11, 82
III says digits are not equal → eliminates 11 → only 82 remains
Sufficient
II + III:
II gives 41, 82
III says digits not equal → both 41 and 82 remain → still two possibilities → Insufficient
I + II:
I gives 11, 82
II gives 41, 82
Intersection = 82 → unique → Sufficient