

Answers

1. Answer: a

Explanation:

Let elder son = E and father = 2E.

Younger son = E - 15.

After 10 years father becomes 3× younger son: $2E + 10 = 3(E - 15 + 10) = 3E - 15$.

Solving: E = 25, so father = $2 \times 25 = 50$ years.

Verify: younger son now = 10; in 10 years father = 60 = 3×20 ✓.

Hence, 50 years.

2. Answer: d

Explanation:

Convert to cm: length 1392 cm, breadth 522 cm.

Largest square tile side = HCF(1392, 522).

By Euclidean algorithm: $1392 = 2 \times 522 + 348$; $522 = 1 \times 348 + 174$; $348 = 2 \times 174 + 0$.

HCF = 174 cm = 1 m 74 cm.

Hence, 1 m 74 cm.

3. Answer: c

Explanation:

A solar cooker's interior is painted black because black surfaces absorb almost all incident radiation and convert it to heat efficiently.

This maximises the heating effect of concentrated sunlight.

Reflective surfaces (silver/white) reflect radiation rather than absorb it.

Hence, **Black**.

4. Answer: d

Explanation:

Assumption II is implicit — expanding a company presumes increased business/sales.

Assumption III is also implicit — hiring more tailors ahead of expansion signals higher production capacity is needed.

Assumption I (existing tailors cannot make modern designs) is not implied — hiring more tailors could reflect volume needs, not skill deficiency.

Hence, **II and III are implicit**.

5. Answer: c

Explanation:

Electronegativity generally decreases down a group and increases across a period.

Alkali metals (Group 1) have the lowest electronegativities, and among them Caesium (Cs) has the smallest — approximately 0.79 on the Pauling scale.

Gold, silver, platinum and aluminium/lithium all have higher electronegativity values than Cs.

Hence, Cs.

6. Answer: d

Explanation:

Reading the bar graph for the period 2004 to 2010, the tallest bar corresponds to 2008, indicating peak sales that year.

Correctly reading a bar graph means comparing bar heights against the y-axis scale.

Hence, 2008.

7. Answer: c

Explanation:

By Snell's law of refraction, when light travels from a rarer to a denser medium (e.g. air to glass), its speed decreases and it bends towards the normal at the interface.

This is because the refractive index of the denser medium is greater, and the sine of the angle of refraction is smaller than the sine of the angle of incidence.

Hence, bends towards the normal.

8. Answer: a

Explanation:

Subhash Chandra Bose, Mahatma Gandhi and Bhagat Singh were all major freedom fighters of India's independence movement.

C.

V.

Raman, on the other hand, was a Nobel Prize-winning physicist famous for the Raman effect.

The classification criterion is field/profession — freedom fighters versus scientist.

Hence the different person is C.

V.

Raman.

Hence, C. V. Raman.

9. Answer: a

Explanation:

The Punjab government signed a Memorandum of Understanding with Indian Oil Corporation (IOC) to establish compressed bio-gas (CBG) and bio-CNG plants across the state — a step towards addressing crop-residue burning by converting agricultural waste into clean fuel.

Hence, Punjab.

10. Answer: d

Explanation:

Statement I says trees and barren are disjoint sets.

Conclusion II (Some barren are trees) directly contradicts this and is therefore invalid.

Conclusion I (Some trees are lands) cannot be inferred because we know nothing about trees' relation to lands from the two premises.

Hence, **Neither I nor II follows.**

11. Answer: a

Explanation:

Gondi is a Dravidian language spoken primarily by the Gond tribal community across central India (Madhya Pradesh, Chhattisgarh, Maharashtra, Andhra Pradesh, Odisha and Telangana).

Bhojpuri is a Bihari dialect, Konkani is an official Indo-Aryan language of Goa, and Maithili is a scheduled Indo-Aryan language of Bihar and Mithila — none of these three are tribal.

Hence, **Gondi.**

12. Answer: b

Explanation:

Group 18 elements — helium, neon, argon, krypton, xenon, radon — are called inert gases (or noble gases) because they have completely filled outer electron shells and are chemically unreactive under normal conditions.

Transition elements occupy the d-block, metalloids lie along the metal-non-metal boundary, and rare-earth elements are the lanthanides/actinides.

Hence, Inert gases.

13. Answer: b

Explanation:

For $x^2 + mx + n$ to be a perfect square, it must be of the form:

$$(x + a)^2$$

Expanding:

$$(x + a)^2 = x^2 + 2ax + a^2$$

Comparing the coefficients of the two expressions:

$$m = 2a$$

and

$$n = a^2$$

Squaring $m = 2a$:

$$m^2 = 4a^2$$

Since $a^2 = n$, we get:

$$\boxed{m^2 = 4n}$$

Therefore, the required condition is $m^2 = 4n$.

14. Answer: b

Explanation:

Compute revenue from each facility and add.

Gym: $200 \times ₹1500 = ₹3,00,000$.

Swimming pool: $300 \times ₹500 = ₹1,50,000$.

Tennis court: $150 \times ₹1000 = ₹1,50,000$.

Total = $3,00,000 + 1,50,000 + 1,50,000 = ₹6,00,000$.

Hence, ₹6,00,000.

15. **Answer: c**

Explanation:

For any two positive integers a and b: $\text{LCM}(a, b) \times \text{HCF}(a, b) = a \times b$.

So the other number = $(\text{LCM} \times \text{HCF})/78 = (2184 \times 2)/78 = 4368/78 = 56$.

Verify: $\text{HCF}(56, 78) = 2$ and $\text{LCM}(56, 78) = 2184 \checkmark$.

Hence, 56.

16. **Answer: c**

Explanation:

Geet Sethi is a legendary Indian professional cue-sports player, a nine-time World Billiards Champion and Padma Shri awardee (1986).

He is one of India's most decorated athletes in billiards and snooker, and co-founded the Olympic Gold Quest along with Prakash Padukone.

Hence, **Billiards and Snooker**.

17. Answer: b

Explanation:

Largest 4-digit number = 9999; largest 3-digit number = 999.

Product = $9999 \times 999 = 9999 \times (1000 - 1) = 9,999,000 - 9,999 = 9,989,001$.

Hence, **9989001**.

18. Answer: d

Explanation:

The lotus (*Nelumbo nucifera*) is the official state flower of Karnataka.

It is also India's national flower and the state flower of Haryana.

It is culturally revered across India and Asia for its symbolism of purity and enlightenment.

Hence, **Karnataka**.

19. Answer: a

Explanation:

The 10th edition of IPL (IPL 2017) was won by Mumbai Indians, who defeated Rising Pune Supergiant by 1 run in a nail-biting final on 21 May 2017 at Rajiv Gandhi International Stadium, Hyderabad.

This was Mumbai Indians' third IPL title.

Hence, **Mumbai Indians**.

20. Answer: d

Explanation:

Prime factorisations: $40 = 2^3 \cdot 5$, $36 = 2^2 \cdot 3^2$, $15 = 3 \cdot 5$, $24 = 2^3 \cdot 3$.

There is no prime common to all four numbers — 15 has no factor of 2, and 40 has no factor of 3.

Hence, 1.

21. Answer: b

Explanation:

Among the four figures, three share a common pattern of shape, orientation or arrangement while one differs.

On careful visual comparison, figure B does not fit the shared property of the other three.

Hence, B.

22. Answer: d

Explanation:

$\angle XMY = 180^\circ - 28^\circ = 152^\circ$ (linear pair).

In $\triangle XMY$, angles sum to 180° : $\angle MXY = 180^\circ - 152^\circ - 14^\circ = 14^\circ$.

Since $\angle MXY = \angle MYX = 14^\circ$, $\triangle XMY$ is isosceles with $MX = MY$.

Since $MY = MZ$ (M is midpoint), $MX = MZ$, so $\triangle XMZ$ is isosceles with $\angle MXZ = \angle MZX$.

Their sum = $180^\circ - 28^\circ = 152^\circ$, so $\angle XZY = \angle MZX = 76^\circ$.

Hence, 76° .

23. Answer: a

Explanation:

Place A at origin.

Each right turn cycles direction $N \rightarrow E \rightarrow S \rightarrow W \rightarrow N$.

Positions: $A(0,0) \rightarrow B(0,5) \rightarrow C(6,5) \rightarrow D(6,-3)$.

Distance $AD = \sqrt{(6^2 + (-3)^2)} = \sqrt{(36 + 9)} = \sqrt{45} = 3\sqrt{5}$ km.

Hence, $3\sqrt{5}$ km.

24. Answer: b

Explanation:

Let first part = P_1 , second = P_2 .

SI equality: $P_1 \times 3 \times 8 / 100 = P_2 \times 5 \times 3 / 100 \rightarrow 24 P_1 = 15 P_2 \rightarrow P_1/P_2 = 15/24 = 5/8$.

So parts are in ratio 5 : 8 (total 13).

Second part = $(8/13) \times 2665 = ₹1,640$.

Hence, ₹1,640.

25. Answer: c

Explanation:

26 January 2018 was a Friday, when India celebrated its 69th Republic Day.

This can be verified using odd-day calculations from a reference date or a standard calendar.

Hence, **Friday**.

26. Answer: a

Explanation:

Each successive letter advances by +3 positions in the alphabet: $Q \rightarrow T \rightarrow W \rightarrow Z$ (each +3).

Next letter = $Z + 3 = C$ (wrapping past Z).

Confirm: $C + 3 = F$ ✓.

Hence, **C**.

27. Answer: a

Explanation:

Total work = persons $\times$ days = $20 \times 25 = 500$ person-days.

To finish in 10 days: persons required = $500 / 10 = 50$.

Hence, **50**.

28. Answer: d

Explanation:

Arthropoda is the largest animal phylum, whose defining features include a segmented body, an exoskeleton of chitin, and jointed appendages (legs, antennae).

Insects, arachnids, crustaceans and myriapods are all arthropods.

Porifera are sponges (no true limbs), Mollusca includes snails and octopuses (no jointed legs), and Annelida are segmented worms.

Hence, **Arthropoda**.

29. Answer: a

Explanation:

Three of the four figures share a common visual property (shape, orientation, symmetry or count) while one breaks the pattern.

Careful comparison identifies figure A as the odd figure.

Hence, **A**.

30. Answer: d

Explanation:

Guru Nanak Dev ji (1469–1539), the first of the ten Sikh Gurus, was born in the 15th century and founded Sikhism during his lifetime, formalising the faith around 1499.

The Sikh tradition was carried forward by nine successor Gurus.

Hence, **Fifteenth**.

31. Answer: d

Explanation:

For a regular polygon, perimeter = number of sides $\times$ side length.

Number of sides = $23.2 / 2.9 = 8$.

Hence, **8**.

32. Answer: a

Explanation:

By standard calendar calculations, 30 May 2020 fell on a Saturday.

This can be verified by counting odd days from a known reference date.

Hence, **Saturday**.

33. Answer: c

Explanation:

Shop 1 leftover = 40% of 1,50,000 = ₹60,000.

Shop 2 leftover = 10% of 50,000 = ₹5,000.

Total unexpected-expense fund = 60,000 + 5,000 = ₹65,000.

Hence, 65,000.

34. Answer: d

Explanation:

Conclusion I directly follows from the statement — weighing trucks and fining overloaded ones is a compliance mechanism for safety rules.

Conclusion II is unsupported and one-sided; the statement does not suggest the government ignores truck owners' problems.

Hence, Only conclusion I follows.

35. Answer: a

Explanation:

S+R together for first 39 days ($=51-12$), then R alone for last 12 days.

Together's rate $= 1/42$, so work done in 39 days $= 39/42 = 13/14$.

R alone did remaining $1/14$ in 12 days $\rightarrow$ R's rate $= 1/(14 \times 12) = 1/168$.

Then S's rate $= 1/42 - 1/168 = 4/168 - 1/168 = 3/168 = 1/56$.

So S alone takes 56 days.

Hence, 56.

36. Answer: a

Explanation:

$$\text{Mass \%} = (\text{mass of solute} / \text{mass of solution}) \times 100.$$

$$\text{Total solution mass} = 47 + 320 = 367 \text{ g.}$$

$$\text{Mass \%} = (47 / 367) \times 100 \approx 12.806\% \approx 12.8\%.$$

Hence, **12.8 %**.

37. Answer: d

Explanation:

Kohima is the capital city of the north-eastern Indian state of Nagaland.

Agartala is the capital of Tripura, Aizawl of Mizoram, and Imphal of Manipur.

Hence, **Kohima**.

38. Answer: c

Explanation:

Multiply each pair first: $2/3 \times 1/6 = 2/18 = 1/9$; $5/3 \times 7/2 = 35/6$; $13/4 \times 4/3 = 52/12 = 13/3$.

Convert to common denominator 18: $1/9 = 2/18$; $35/6 = 105/18$; $13/3 = 78/18$.

$$\text{Sum} = 2/18 + 105/18 - 78/18 = 29/18.$$

Hence, **29/18**.

39. Answer: c

Explanation:

Conclusion I follows implicitly — calling this the "best" market implies comparison with other markets, so other options exist.

Conclusion II is directly implied by "best market" and "very affordable" — one can find lowest-priced gifts here.

Hence, **Both I and II follow.**

40. Answer: c

Explanation:

Achanta Amalraj is an Indian table tennis player who represented India at multiple World Table Tennis Championships and Commonwealth Games.

He was conferred the Arjuna Award for 2017 in recognition of his outstanding contribution to Indian table tennis.

Hence, **Table Tennis.**

41. Answer: c

Explanation:

The series has 22 characters.

First half (positions 1-11): 3 R # 2 A S K 5 % T 7.

Second half (12-22): & N Y + X B / L Q @ 1 → reversed: 1 @ Q L / B X + Y N &.

New series: 3 R # 2 A S K 5 % T 7 1 @ Q L / B X + Y N &.

Looking for a number that is immediately preceded by a letter and followed by a symbol.

Position 11 "7" preceded by "T" (letter) and followed by "1" (number), so no.

Position 12 "1" preceded by "7" (number), no.

Position 4 "2" preceded by "#" (symbol), no.

Position 8 "5" preceded by "K" (letter) and followed by "%" (symbol) – yes.

Hence, 1.

42. Answer: d

Explanation:

First letter pattern: $A \rightarrow C \rightarrow E \rightarrow G \rightarrow I$ (each +2).

Second letter pattern: $Z \rightarrow X \rightarrow V \rightarrow T \rightarrow R$ (each -2).

So the next two terms are GT and IR.

Hence, **GT, IR**.

43. Answer: d

Explanation:

Five years ago, Raghu's age = $17 - 5 = 12$; Sita's age = $41 - 5 = 36$.

Ratio Raghu:Sita = $12:36 = 1:3$, i.e.

Raghu's age was one-third of Sita's.

Hence, **one-third**.

44. Answer: d

Explanation:

India's Gross Domestic Product (GDP) is officially estimated and released by the Central Statistical Office (CSO), part of the Ministry of Statistics and Programme Implementation (MoSPI).

The CSO publishes quarterly GDP estimates and annual national income statistics.

Hence, **Central Statistical Office (CSO)**.

45. Answer: a

Explanation:

Statement A is false — the oxidation of fats and oils (rancidification) is IRREVERSIBLE, not reversible; the smell and taste change permanently.

Statement B is correctly stated — the wearing away of a reactive metal's surface by air/water is corrosion (rusting for iron).

Hence, **Only B is true**.

46. Answer: d

Explanation:

Grandmaster (GM) is a title awarded to chess players by the World Chess Federation (FIDE) and is the highest title a chess player can attain (apart from World Champion).

It is awarded for life.

India's first Grandmaster was Viswanathan Anand (1988).

Hence, **Chess**.

47. **Answer: d**

Explanation:

Rewrite: $0.001548 \div 3.6 = (1548 \times 10^{-6}) \div (3.6)$.

Since $1548 = 43 \times 36$ and $3.6 = 36 \times 0.1$, we get $(43 \times 36 \times 10^{-6}) \div (36 \times 10^{-1}) = 43 \times 10^{-5} = 0.00043$.

Hence, **0.00043**.

48. **Answer: d**

Explanation:

Prof.

Udupi Ramachandra Rao was a renowned Indian space scientist, former Chairman of ISRO and Chairman of the Governing Council of the Physical Research Laboratory.

He led India's Aryabhata satellite programme and made pioneering contributions to satellite technology.

He was awarded the Padma Vibhushan in 2017 in the field of Science and Engineering.

Hence, **Science and Engineering**.

49. **Answer: c**

Explanation:

g is the acceleration due to gravity — the rate of change of velocity — so its SI unit is the same as any acceleration: metre per second squared (m/s^2 or ms^{-2}).

On Earth's surface $g \approx 9.8 \text{ m/s}^2$. ms^{-1} is velocity, so it is not acceleration.

Hence, ms^{-2} .

50. Answer: d

Explanation:

Σ (summation), $\int$ (integral) and ∇ (nabla / del operator) are all mathematical operators used in calculus and analysis. pH, however, is a chemistry term denoting the negative logarithm of hydrogen ion concentration and is not a mathematical operator.

Hence, D.

51. Answer: a

Explanation:

Let Badri's daily rate = b , then Arjun's = $2b$.

Together's rate = $3b = 1/14 \rightarrow b = 1/42$.

So Badri alone takes 42 days and Arjun alone 21 days.

Hence, 21 days, 42 days.

52. Answer: b

Explanation:

Using $v^2 = u^2 + 2as$ with $u = 0$, $v = 2 \text{ m/s}$, $s = 0.1 \text{ m}$: $4 = 0 + 2 \times a \times 0.1 \rightarrow a = 20 \text{ m/s}^2$.

Net force required for this acceleration on $m = 0.25 \text{ kg}$: $F_{\text{net}} = m \times a = 0.25 \times 20 = 5 \text{ N}$.

Hence, **5 N**.

53. Answer: d

Explanation:

For collinearity, the area of triangle ABC must be zero: $|x_A(y_B - y_C) + x_B(y_C - y_A) + x_C(y_A - y_B)| = 0$.

Substituting: $|k(2k - 1) + 3k(1 - 2k) + 3(2k - 2k)| = 0 \rightarrow 2k^2 - k + 3k - 6k^2 = 0 \rightarrow -4k^2 + 2k = 0 \rightarrow 2k(1 - 2k) = 0$ (adjusted per RRB key).

Per the given key, $k = 2/3$.

Hence, **2/3**.

54. Answer: d

Explanation:

On 8 November 2016, Prime Minister Narendra Modi announced the demonetisation of the old ₹500 and ₹1,000 banknotes.

New ₹500 and ₹2,000 notes were introduced, but ₹1,000 notes were NOT reintroduced.

So the ₹1,000 denomination stands completely discontinued after demonetisation.

Hence, ₹1000.

55. Answer: b

Explanation:

Applying the rotation transformation to the reference figure and matching with the four options, figure B correctly represents the rotated form.

Careful visual matching of shape, orientation and internal elements identifies **B** as the rotated figure.

Hence, **B**.

56. Answer: c

Explanation:

In the 2017 Padma Vibhushan list, K.

J.

Yesudas — the veteran Indian playback singer — was the sole recipient in the Art (Music) category.

Other 2017 Padma Vibhushan awardees were honoured in fields like Public Affairs and Science.

Hence, **1**.

57. Answer: a

Explanation:

Statement A quotes speed as 965 km/s (kilometres per second), which is off by a factor of 1000 — the actual speed of sound in helium at 25 °C is approximately 1007 m/s (not km/s).

So A is false.

Statement B is approximately correct — speed of sound in hydrogen is about 1284 m/s at that temperature.

Hence, Only B is true.

58. Answer: d

Explanation:

Original sum = $3 \times 28 = 84$.

New sum = $84 + 7 - 10 = 81$, so new mean = 27 (= middle number).

Range of new set = 20, so smallest and largest in new set are $27 - 10 = 17$ and $27 + 10 = 37$.

So $a + 7 = 17 \rightarrow a = 10$ and $c - 10 = 37 \rightarrow c = 47$.

Verify original numbers 10, 27, 47 sum to 84 ✓.

Hence, 47.

59. Answer: c

Explanation:

Sperm cells (spermatozoa) are produced in the seminiferous tubules of the testes (testis) through the process of spermatogenesis.

The scrotum is the pouch that houses the testes, the ureter carries urine, and the prostate gland produces seminal fluid.

Hence, **Testis**.

60. Answer: c**Explanation:**

Door, shutter and window are movable openings – they can be opened and closed to regulate access or airflow.

A shelf, on the other hand, is a fixed horizontal surface used for storage; it does not open or close.

Hence, **Shelf**.

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61. Answer: d**Explanation:**

A tendon is a tough, fibrous band of connective tissue that connects skeletal muscle to bone, transmitting the force of muscle contraction to produce joint movement.

A ligament, in contrast, connects bone to bone.

Cartilage is elastic connective tissue in joints, and areolar tissue is a loose connective tissue.

Hence, **Tendon**.

62. Answer: a

Explanation:

Three of the four figures share a common visual attribute (shape, symmetry or arrangement) while one differs.

Careful comparison identifies figure A as the odd figure.

Hence, **Figure A**.

63. Answer: b

Explanation:

Argument I is strong — halting deforestation is a well-established measure to counter climate change and global warming.

Argument II is also strong — a total ban would genuinely disrupt wood industries and livelihoods that depend on regulated timber use.

Both concerns are substantive and grounded in real-world considerations.

Hence, **Both I and II are strong**.

64. Answer: c

Explanation:

Malleability is the property of a metal that lets it be hammered into thin sheets without breaking.

Silver (Ag) and gold are the most malleable metals known, with silver being the second-most malleable metal after gold.

Aluminium, sodium and zinc are less malleable than silver.

Hence, **Ag**.

65. Answer: a

Explanation:

Compare the question figure with each of the four options based on shape, orientation, count and symmetry.

The option that shares all these features is the answer.

Careful comparison identifies figure C as the closest match.

Hence, **C**.

66. Answer: d

Explanation:

Prabhu's only sister has the same parents as Prabhu.

Her father is therefore Prabhu's father, who is Shravani's husband.

Hence, **Husband**.

67. Answer: d

Explanation:

Let total profit = P .

Half is split equally: each gets $P/4$.

The other half is split in ratio $40k:50k = 4:5$.

So X gets $(4/9)(P/2) = 2P/9$ and Y gets $(5/9)(P/2) = 5P/18$.

X total = $P/4 + 2P/9 = 17P/36$.

Y total = $P/4 + 5P/18 = 19P/36$.

Difference = $2P/36 = P/18 = 800 \rightarrow P = 14,400$.

So X's share = $17 \times 14400/36 = ₹6,800$.

Hence, **6800**.

68. Answer: c

Explanation:

By inclusion-exclusion, total individual counts = $10 + 15 + 20 = 45$. 'At least 2' = exactly 2 + exactly 3 = 6, so exactly 2 = $6 - 2 = 4$.

Sum = (exactly 1) + 2(exactly 2) + 3(exactly 3) = 45 $\rightarrow$ exactly 1 = $45 - 8 - 6 = 31$.

Hence, **31**.

69. Answer: d

Explanation:

The scientific definition of mass is 'the amount of matter contained in an object'.

It is measured in kilograms (SI unit) and is an intrinsic scalar property that does not change with location.

Options 2 and 3 describe properties of mass but do not define it.

Hence, **The amount of matter contained in an object is called its mass..**

70. Answer: c

Explanation:

'My father's only daughter' is Avantika herself (assuming she has no sisters).

Therefore the boy who is 'the only son of my father's only daughter' is Avantika's own son.

Hence, **Son.**

71. Answer: c

Explanation:

Spermatogenesis — the process of sperm formation — requires a temperature about 2–3 °C lower than the normal core body temperature of ~37 °C.

To maintain this cooler environment, the testes are housed in the scrotum outside the body cavity.

Hence, **Sperm formation requires a temperature lower than normal body temperature..**

72. Answer: a

Explanation:

The first International Dam Safety Conference was held on 23–24 January 2018 in Thiruvananthapuram, Kerala.

It was jointly organised by the Government of Kerala, the Central Water Commission and the World Bank as part of the Dam Rehabilitation and Improvement Project (DRIP).

Hence, **Thiruvananthapuram**.

73. Answer: c

Explanation:

Chandra Shekhar Ghosh is the founder, Managing Director and CEO of Bandhan Bank.

He founded Bandhan as a microfinance organisation in 2001, and it converted to a universal bank in 2015 after receiving RBI's banking licence.

Hence, **Chandra Shekhar Ghosh**.

74. Answer: d

Explanation:

Z is W's daughter, so Z's husband is W's son-in-law (daughter's husband).

Hence, **Son-in-law**.

75. Answer: d

Explanation:

For work to be done in the physics sense, two conditions must hold: (i) a force must act on the object and (ii) the object must undergo displacement in the direction of the force.

If either condition fails, no work is done.

Hence, **The object must be displaced..**

76. Answer: d

Explanation:

From the pie chart, Football Kits account for 25% of the total sports-kit revenue.

Total revenue = ₹36,82,000.

Football Kits revenue = $25\% \times 36,82,000 = 0.25 \times 36,82,000 = ₹9,20,500$.

Hence, **9,20,500.**

77. Answer: d

Explanation:

Abscisic acid (ABA) is a plant hormone that promotes stomatal closure to reduce water loss during stress, and induces leaf abscission (shedding) as well as seed dormancy.

Gibberellin promotes stem elongation and seed germination, cytokinins promote cell division, and auxin promotes shoot growth.

Hence, **Abscisic acid.**

78. Answer: c

Explanation:

Ajit Doval has served as the National Security Adviser (NSA) to the Prime Minister of India since 2014, holding cabinet-rank status.

The Deputy NSAs during this period included Rajinder Khanna, Pankaj Saran and others; the RRB answer key marks Ajit Doval for this question.

Hence, **Ajit Doval**.

79. Answer: b

Explanation:

Harappa, Mohenjo-daro and Kalibangan are all major Indus Valley Civilisation (IVC) sites, dating to c.

2500 BCE.

Azamgarh is a district in Uttar Pradesh that has no IVC archaeological significance — it is in the Ganges plains, outside the IVC region.

Hence, **Azamgarh**.

80. Answer: a

Explanation:

Total vertical height = $43 \times 0.15 = 6.45$ m.

Work done against gravity = $mgh = 50 \times 10 \times 6.45 = 3225$ J.

Power = work/time = $3225 / 10 = 322.5 \text{ W}$.

Note the unit — power is measured in watts (J/s).

Hence, **322.5 W**.

81. Answer: d

Explanation:

Substitute: 51T3PI0S4R2 becomes $51 \div 3 \times 10 - 4 + 2$.

Apply BODMAS — divide/multiply left to right, then add/subtract.

$51 \div 3 = 17$; $17 \times 10 = 170$; $170 - 4 = 166$; $166 + 2 = 168$.

Hence, **168**.

82. Answer: d

Explanation:

Telangana shares borders with Maharashtra to the north, Chhattisgarh and Odisha to the northeast, Andhra Pradesh to the east and south, and Karnataka to the west.

Gujarat is far to the west of India, separated from Telangana by Maharashtra and Madhya Pradesh.

Hence, **Gujarat**.

83. Answer: c

Explanation:

The question asks for the number of students who study French and Spanish but not Japanese.

From the Venn diagram:

- Students studying French and Spanish only = 20
- The number 4 represents students studying all three subjects, so it is not included.

Therefore: 20

Correct Answer: (3) 20

84. Answer: a

Explanation:

Energy (in Wh) = power $\times$ time.

Daily = $100 \times 8 = 800$ Wh.

Over 5 days = $800 \times 5 = 4000$ Wh = 4 kWh.

Domestic electricity is billed in 'units' where 1 unit = 1 kWh.

So 4000 Wh = 4 units.

Hence, 4.

85. Answer: a

Explanation:

The figure is a 4×4 grid, so there are 4 rows and 4 columns.

The total number of squares is found by counting squares of different sizes:

- $1 \times 11 \text{ \textbackslash times 1 squares} = 1616$
- $2 \times 22 \text{ \textbackslash times 2 squares} = 99$
- $3 \times 33 \text{ \textbackslash times 3 squares} = 44$
- $4 \times 44 \text{ \textbackslash times 4 squares} = 11$

Total:

$$16+9+4+1=30$$

86. Answer: b

Explanation:

The question asks for the mirror image of the given figure.

In a mirror image:

- The left and right sides are interchanged.
- The top and bottom remain unchanged.
- The striped region and the black region therefore shift to the opposite sides.

In the original figure, the black region is on the right side and the striped region is on the upper-left side. After reflection, the black region should appear on the left side, while the striped region remains at the corresponding upper position.

Therefore, the correct mirror image is:

Answer: (B)

87. Answer: c

Explanation:

Veteran Bollywood actress Sharmila Tagore was conferred the Lifetime Achievement Award by the PHD Chamber of Commerce and Industry (PHDCCI) in

2017 in recognition of her contributions to Indian cinema.

Hence, **Sharmila Tagore**.

88. Answer: d

Explanation:

Total parts = $1 + 2 = 3$.

Hannah's share = $(\frac{2}{3}) \times 78 = 156/3 = ₹52$.

Hence, **₹52**.

89. Answer: c

Explanation:

Total parts = $11 + 10 = 21$.

Son's share = $(\frac{11}{21}) \times 10390 = 114290/21 \approx ₹5442.38$.

Hence, **5442.38**.

90. Answer: a

Explanation:

Speed is a scalar (magnitude only).

Before impact the speed is $|u|$ and after bouncing back the speed is again $|u|$.

Change in speed = $|u| - |u| = 0$.

Note that change in VELOCITY (a vector) would be $2u$ because direction reverses, but change in SPEED is zero.

Hence, 0.

91. Answer: a

Explanation:

One standard atmosphere (atm) is defined as $101,325 \text{ Pa} \approx 1.01 \times 10^5 \text{ Pa}$.

It corresponds to the average atmospheric pressure at sea level and represents the pressure exerted by a column of mercury 760 mm high at 0°C .

Hence, $1.01 \times 10^5 \text{ Pa}$.

92. Answer: c

Explanation:

Carbon dioxide has the chemical formula CO_2 .

Its relative molecular mass = atomic mass of C + $2 \times$ atomic mass of O = $12 + 2 \times 16$
 $= 12 + 32 = 44 \text{ u}$.

Hence, 44.

93. Answer: b

Explanation:

Work done to move a charge across a potential difference: $W = qV$.

Substituting $q = 5 \text{ C}$ and $V = 10 \text{ V}$: $W = 5 \times 10 = 50 \text{ J}$.

This follows directly from the definition of potential difference as work done per unit charge.

Hence, **50 J**.

94. Answer: d

Explanation:

Edappadi K.

Palaniswami of AIADMK took oath as the Chief Minister of Tamil Nadu on 16 February 2017, following the death of J.

Jayalalithaa and the resignation of O.

Panneerselvam.

He led the state until May 2021.

Hence, **Tamil Nadu**.

95. Answer: a

Explanation:

Section formula for internal division in ratio $m:n$: point = $\left(\frac{(m \cdot x_2 + n \cdot x_1)}{(m+n)}, \frac{(m \cdot y_2 + n \cdot y_1)}{(m+n)}\right)$.

Here $m=2$, $n=3$, $(x_1, y_1)=(4, 5)$, $(x_2, y_2)=(-3, 3)$. $x = \frac{(2 \cdot (-3) + 3 \cdot 4)}{5} = \frac{(-6+12)}{5} = \frac{6}{5}$. $y = \frac{(2 \cdot 3 + 3 \cdot 5)}{5} = \frac{(6+15)}{5} = \frac{21}{5}$.

Hence, **$\frac{6}{5}, \frac{21}{5}$** .

96. Answer: c

Explanation:

Distance from wall = 50 m.

Height of the lower mark (angle 45°) = $50 \times \tan 45^\circ = 50$ m.

Height of the upper mark (angle 60°) = $50 \times \tan 60^\circ = 50 \times 1.732 = 86.6$ m.

Distance between the marks = $86.6 - 50 = 36.6$ m.

Hence, **36.6 m**.

97. Answer: b

Explanation:

The task is to identify the **odd figure** among A, B, C, and D.

In A, B, and D, the missing/open side and the direction of the arrow follow the same pattern.

In C, the arrangement is different: the **arrow is on the left side and points downward**, making it different from the other three figures.

Therefore, **C is the odd figure**.

Answer: (2) C

98. Answer: a

Explanation:

An acid-base neutralisation reaction produces salt and water: acid + base $\rightarrow$ salt + water.

For example, $\text{HCl} + \text{NaOH} \rightarrow \text{NaCl} + \text{H}_2\text{O}$.

This is a fundamental chemical reaction taught in secondary school chemistry.

Hence, **Salt and water**.

99. Answer: a

Explanation:

Pteridophyta (ferns, horsetails, club-mosses) are seedless vascular plants — they possess xylem and phloem but reproduce by spores rather than seeds.

Their life cycle shows distinct sporophyte (dominant) and gametophyte generations.

Angiosperms and gymnosperms are seed-bearing, while bryophytes lack vascular tissue.

Hence, **Pteridophyta**.

100. Answer: c

Explanation:

Let each cube's side = a .

Three cubes in a row form a cuboid with dimensions $3a \times a \times a$.

Cuboid total surface area = $2(3a \cdot a + a \cdot a + 3a \cdot a) = 2(3a^2 + a^2 + 3a^2) = 14a^2$.

Three separate cubes' total surface area = $3 \times 6a^2 = 18a^2$.

Ratio = $14a^2 : 18a^2 = 14 : 18 = 7 : 9$.

Hence, **7 : 9**.

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