

Aptitude

1. A train 150 meters long is running at a speed of 72 kilometers per hour. In what time will it pass a telegraph pole?

- A) 5.5 seconds
- B) 6.5 seconds
- C) 7.5 seconds
- D) 8.5 seconds

Answer: C) 7.5 seconds

Explanation: Speed = $72 \times \frac{5}{18} = 20$ m/s. Time = Distance / Speed = $150 / 20 = 7.5$ seconds.

2. A train 240 meters long passes a platform 300 meters long in 27 seconds. What is the speed of the train in kilometers per hour?

- A) 60 km/hr
- B) 72 km/hr
- C) 80 km/hr
- D) 90 km/hr

Answer: B) 72 km/hr

Explanation: Speed = $(240 + 300) / 27 = 20$ m/s. Convert to km/hr: $20 \times \frac{18}{5} = 72$ km/hr.

3. Two trains of lengths 120 meters and 80 meters are running in opposite directions with velocities of 42 kilometers per hour and 30 kilometers per hour. In what time will they completely cross each other?

- A) 8 seconds
- B) 10 seconds
- C) 12 seconds
- D) 14 seconds

Answer: B) 10 seconds

Explanation: Relative Speed = $42 + 30 = 72$ km/hr = 20 m/s. Total Distance = $120 + 80 = 200$ m. Time = $200 / 20 = 10$ seconds.

4. A car covers a distance of 690 kilometers in 30 hours. What is the speed of the car?

A) 21 km/hr

B) 23 km/hr

C) 25 km/hr

D) 27 km/hr

Answer: B) 23 km/hr

Explanation: $\text{Speed} = \text{Distance} / \text{Time} = 690 / 30 = 23 \text{ km/hr}$.

5. A person travels from P to Q at a speed of 40 kilometers per hour and returns by increasing his speed by 50%. What is his average speed for both trips?

A) 45 km/hr

B) 48 km/hr

C) 50 km/hr

D) 52 km/hr

Answer: B) 48 km/hr

Explanation: Return speed = $40 * 1.5 = 60 \text{ km/hr}$. Average speed = $(2 * 40 * 60) / (40 + 60) = 48 \text{ km/hr}$.

6. A cyclist is moving at a speed of 15 meters per second. What is the speed in kilometers per hour?

A) 48 km/hr

B) 50 km/hr

C) 52 km/hr

D) 54 km/hr

Answer: D) 54 km/hr

Explanation: To convert m/s to km/hr, multiply by $18/5$. Speed = $15 * (18/5) = 54 \text{ km/hr}$.

7. The angle of elevation of the top of a tower from a point 30 m away from its foot is 30° . What is the height of the tower?

A) 30 m

B) $30\sqrt{3}$ m

C) 10 m

D) $10\sqrt{3}$ m

Answer: D) $10\sqrt{3}$ m

Explanation: Height = Distance * $\tan(\text{angle}) = 30 * \tan(30^\circ) = 30 * (1/\sqrt{3}) = 10\sqrt{3}$ m.

8. A pole 6 m high casts a shadow $2\sqrt{3}$ m long on the ground. The sun's elevation is:

A) 30°

B) 45°

C) 60°

D) 90°

Answer: C) 60°

Explanation: $\tan(\theta) = \text{Height}/\text{Shadow} = 6 / (2\sqrt{3}) = \sqrt{3}$. The angle for which \tan is $\sqrt{3}$ is 60° .

9. From the top of a cliff 150 m high, the angle of depression of a boat is 60° . Find the distance of the boat from the cliff.

A) $50\sqrt{3}$ m

B) $150\sqrt{3}$ m

C) 50 m

D) 150 m

Answer: A) $50\sqrt{3}$ m

Explanation: Distance = Height / $\tan(\text{angle}) = 150 / \tan(60^\circ) = 150 / \sqrt{3} = 50\sqrt{3}$ m.

10. A can do a piece of work in 15 days and B in 20 days. If they work on it together for 4 days, then the fraction of the work that is left is:

A) $7/15$

B) $8/15$

C) $1/4$

D) $1/10$

Answer: B) $8/15$

Explanation: Work done in 4 days = $4 * (1/15 + 1/20) = 7/15$. Remaining work = $1 - 7/15 = 8/15$.

11. A is twice as good a workman as B and together they finish a piece of work in 14 days. In how many days can A alone finish the work?

A) 11 days

B) 21 days

C) 28 days

D) 42 days

Answer: B) 21 days

Explanation: Let A take 'x' days, B takes '2x' days. $(1/x) + (1/2x) = 1/14$, which gives $x = 21$ days.

12. A and B can do a job in 12 days, B and C in 16 days, and A and C in 24 days. How many days will A, B, and C take to complete the job together?

A) $32/3$ days

B) $16/3$ days

C) $30/3$ days

D) 10 days

Answer: A) $32/3$ days

Explanation: $2(A+B+C)$'s 1-day work = $1/12 + 1/16 + 1/24 = 9/48$. So, $(A+B+C)$ take $2 * 48/9 = 32/3$ days.

13. P can finish a work in 18 days. Q can finish the same work in 15 days. Q worked for 10 days and left. In how many days, P alone can finish the remaining work?

A) 5 days

B) 5.5 days

C) 6 days

D) 8 days

Answer: C) 6 days

Explanation: Work done by Q = $10/15 = 2/3$. Remaining work = $1/3$. Time for P = $(1/3) / (1/18) = 6$ days.

14. Find the simple interest on ₹5000 for 2 years at 8% per annum.

A) ₹700

B) ₹800

C) ₹900

D) ₹1000

Answer: B) ₹800

Explanation: $SI = (\text{Principal} * \text{Rate} * \text{Time}) / 100 = (5000 * 8 * 2) / 100 = ₹800$.

15. A sum amounts to ₹9800 after 5 years and ₹12005 after 8 years at the same rate of simple interest. The rate of interest per annum is:

- A) 5%
- B) 8%
- C) 12%
- D) 15%

Answer: C) 12%

Explanation: SI for 3 years = 2205, so SI per year = 735. Principal = $9800 - (5 * 735) = 6125$. Rate = $(735/6125) * 100 = 12\%$.

16. In what time will ₹1000 become ₹1331 at 10% per annum compounded annually?

- A) 2 years
- B) 2.5 years
- C) 3 years
- D) 3.5 years

Answer: C) 3 years

Explanation: $1331/1000 = (11/10)^3$. This is $(1 + 10/100)^3$, so the time is 3 years.

17. Find the compound interest on ₹8000 for 2 years at 5% per annum.

- A) ₹800
- B) ₹810
- C) ₹820
- D) ₹830

Answer: C) ₹820

Explanation: Amount = $8000 * (1.05)^2 = 8820$. CI = Amount - Principal = $8820 - 8000 = ₹820$.

18. What will be the amount if a sum of ₹10,000 is placed at compound interest for 3 years at a rate of 10% per annum?

- A) ₹12,310
- B) ₹13,000

C) ₹13,310

D) ₹14,310

Answer: C) ₹13,310

Explanation: Amount = $10000 * (1.1)^3 = 10000 * 1.331 = ₹13,310$.

19. The difference between simple and compound interest on ₹1200 for one year at 10% per annum, reckoned half-yearly is:

A) ₹2.50

B) ₹3

C) ₹3.75

D) ₹4

Answer: B) ₹3

Explanation: SI = 120. CI (half-yearly) = $1200 * (1.05)^2 - 1200 = 123$. Difference = $123 - 120 = ₹3$.

20. A man buys an article for ₹27.50 and sells it for ₹28.60. Find his gain percent.

A) 2%

B) 3%

C) 4%

D) 5%

Answer: C) 4%

Explanation: Gain = $28.60 - 27.50 = 1.10$. Gain % = $(1.10 / 27.50) * 100 = 4\%$.

21. If the cost price of 12 pens is equal to the selling price of 8 pens, the gain percent is:

A) 25%

B) 33.33%

C) 50%

D) 66.66%

Answer: C) 50%

Explanation: Gain % = $[(\text{Goods Left}) / (\text{Goods Sold})] * 100 = [(12-8)/8] * 100 = 50\%$.

22. By selling an article for ₹450, a man loses 10%. At what price should he sell it to gain 10%?

- A) ₹500
- B) ₹525
- C) ₹550
- D) ₹600

Answer: C) ₹550

Explanation: Cost Price = $450 * (100/90) = ₹500$. New SP for 10% gain = $500 * (110/100) = ₹550$.

23. A shopkeeper sells a transistor at ₹840 at a gain of 20% and another for ₹960 at a loss of 4%. His total gain or loss percent is:

- A) 5 15/17% loss
- B) 5 15/17% gain
- C) 6 2/3% gain
- D) 6 2/3% loss

Answer: B) 5 15/17% gain

Explanation: Total CP = $(840 * 100/120) + (960 * 100/96) = 700 + 1000 = ₹1700$. Total SP = $840 + 960 = ₹1800$. Gain% = $(100/1700) * 100 = 5 \frac{15}{17}\%$.

24. A, B and C started a business investing ₹1,20,000, ₹1,35,000 and ₹1,50,000. Find A's share from a profit of ₹56,700.

- A) ₹16,800
- B) ₹18,900
- C) ₹21,000
- D) ₹15,500

Answer: A) ₹16,800

Explanation: Investment Ratio = $120:135:150 = 8:9:10$. A's share = $(8/27) * 56700 = ₹16,800$.

25. A starts a business with ₹3500. B joins after 5 months. After a year, the profit ratio is 2:3. What is B's capital?

- A) ₹7500
- B) ₹8000
- C) ₹8500
- D) ₹9000

Answer: D) ₹9000

Explanation: $(3500 * 12) / (B's\ Capital * 7) = 2/3$. Solving for B's Capital gives ₹9000.

26. A and B invest in the ratio 3:2. If 5% of the total profit goes to charity and A's share is ₹855, the total profit is:

A) ₹1425

B) ₹1500

C) ₹1537.50

D) ₹1576

Answer: B) ₹1500

Explanation: A's share is $(3/5)$ of 95% of total profit. $855 = 0.6 * 0.95 * P$. Total Profit (P) = ₹1500.

27. What is 25% of 200?

A) 25

B) 50

C) 75

D) 100

Answer: B) 50

Explanation: $25\% \text{ of } 200 = (25/100) * 200 = 50$.

28. If the price of a book is first decreased by 25% and then increased by 20%, the net change in the price will be:

A) 10% decrease

B) 5% decrease

C) No change

D) 10% increase

Answer: A) 10% decrease

Explanation: Let price be 100. After decrease: 75. After increase: $75 * 1.20 = 90$. The net change is a 10% decrease.

29. A student needs 40% to pass. He gets 178 marks and fails by 22 marks. The maximum marks are:

A) 200

- B) 300
- C) 500
- D) 1000

Answer: C) 500

Explanation: Passing marks = $178 + 22 = 200$. This is 40% of the maximum. Max Marks = $200 / 0.40 = 500$.

30. Express the fraction $\frac{3}{4}$ as a percentage.

- A) 25%
- B) 50%
- C) 75%
- D) 60%

Answer: C) 75%

Explanation: To convert a fraction to a percentage, multiply by 100. $(\frac{3}{4}) * 100 = 75\%$.

31. Present ages of two brothers are in ratio 1:2. 5 years ago, the ratio was 1:3. What is the ratio after 5 years?

- A) 1:4
- B) 2:3
- C) 3:5
- D) 5:6

Answer: C) 3:5

Explanation: Ages are $x, 2x$. $(x-5)/(2x-5)=1/3 \Rightarrow x=10$. Present ages are 10, 20. After 5 yrs: 15, 25. The ratio is 3:5.

32. The sum of the ages of a father and son is 60. Six years ago, the father's age was five times the son's. After 6 years, son's age will be:

- A) 14 years
- B) 20 years
- C) 22 years
- D) 24 years

Answer: B) 20 years

Explanation: Let the present ages be F and S. $F+S=60$ and $F-6=5(S-6)$. Solving gives $S=14$. The son's age after 6 years will be $14+6=20$.

33. Rajan's present age is $\frac{6}{5}$ of his age at marriage 8 years ago. His sister was 10 years younger. Find his sister's present age.

A) 32 years

B) 36 years

C) 38 years

D) 40 years

Answer: C) 38 years

Explanation: Let present age be x . $x = (\frac{6}{5})(x-8) \Rightarrow x=48$. Age at marriage was 40. His sister's age then was 30. Her present age is $30+8=38$.

34. If today is Monday, what will be the day after 61 days?

A) Wednesday

B) Saturday

C) Tuesday

D) Thursday

Answer: B) Saturday

Explanation: 61 divided by 7 leaves a remainder of 5. The day will be Monday + 5 days, which is Saturday.

35. Which of the following is a leap year?

A) 1900

B) 1800

C) 2000

D) 2100

Answer: C) 2000

Explanation: A century year is a leap year only if it is divisible by 400.

36. Find the angle between the hour and minute hand of a clock at 3:25.

A) 45°

B) 47.5°

C) 50°

D) 52.5°

Answer: B) 47.5°

Explanation: Angle = $|(30 * \text{Hour}) - (11/2 * \text{Minute})| = |(30 * 3) - (11/2 * 25)| = |90 - 137.5| = 47.5^\circ$.

37. At what time between 4 and 5 o'clock will the hands of a clock be at a right angle?

A) 4:38

B) 4:05 5/11

C) 4:40

D) Both A and B

Answer: B) 4:05 5/11

Explanation: The hands are at a right angle twice. The first instance occurs when the minute hand has gained 5 minutes on the hour hand, which is at 5 and 5/11 minutes past 4.

38. What is the average of the first 50 natural numbers?

A) 25

B) 25.5

C) 26

D) 26.5

Answer: B) 25.5

Explanation: Average = $(\text{First number} + \text{Last number}) / 2 = (1 + 50) / 2 = 25.5$.

39. The average age of 39 students is 15 years. If the teacher's age is included, the average increases by 3 months. Find the teacher's age.

A) 25 years

B) 23 years

C) 27 years

D) 28 years

Answer: A) 25 years

Explanation: Teacher's age = New Average + $(\text{Old Count} * \text{Increase}) = 15.25 + (39 * 0.25) = 25$ years.

40. A man travels at 60 km/hr from A to B and returns at 100 km/hr. Find the average speed.

A) 75 km/hr

B) 80 km/hr

C) 70 km/hr

D) 85 km/hr

Answer: A) 75 km/hr

Explanation: Average speed = $(2 * S_1 * S_2) / (S_1 + S_2) = (2 * 60 * 100) / (60 + 100) = 75$ km/hr.

41. Length of a rectangle is 20m more than breadth. Fencing cost is ₹5300 at ₹26.50/m. Find the length.

A) 40 meters

B) 50 meters

C) 60 meters

D) 70 meters

Answer: C) 60 meters

Explanation: Perimeter = $5300 / 26.50 = 200$ m. $2(b+20+b)=200 \Rightarrow b=40$. Length = $40+20=60$ m.

42. What is the area of a circle whose circumference is 44 cm?

A) 154 cm²

B) 144 cm²

C) 164 cm²

D) 174 cm²

Answer: A) 154 cm²

Explanation: $2\pi r = 44 \Rightarrow r=7$. Area = $\pi r^2 = (22/7) * 49 = 154$ cm².

43. The diagonal of a square is $4\sqrt{2}$ cm. The area of another square with double the area is:

A) 16 cm²

B) 32 cm²

C) 64 cm²

D) 128 cm²

Answer: B) 32 cm²

Explanation: Area of 1st square = $(\text{Diagonal})^2/2 = 32/2 = 16$. Area of 2nd square = $2*16 = 32 \text{ cm}^2$.

44. What is the volume of a cube with a side length of 6 cm?

A) 144 cm^3

B) 180 cm^3

C) 216 cm^3

D) 256 cm^3

Answer: C) 216 cm^3

Explanation: Volume = $(\text{side})^3 = 6^3 = 216 \text{ cm}^3$.

45. The length, breadth, and height of a room are 12m, 10m, and 8m. Find the total surface area.

A) 428 m^2

B) 512 m^2

C) 592 m^2

D) 624 m^2

Answer: C) 592 m^2

Explanation: Total Surface Area = $2 * (lb + bh + hl) = 2 * (12*10 + 10*8 + 8*12) = 2 * (120 + 80 + 96) = 592 \text{ m}^2$.

46. The radius and height of a cylinder are in the ratio 5:7 and its volume is 550 cm^3 . Find its radius.

A) 5 cm

B) 6 cm

C) 7 cm

D) 10 cm

Answer: A) 5 cm

Explanation: Let $r=5x$, $h=7x$. Volume = $(\pi/4)*(5x)^2*(7x) = 550$. Solving gives $x=1$. Radius = $5x = 5 \text{ cm}$.

47. In how many ways can the letters of the word 'LEADING' be arranged?

A) 720

B) 2520

C) 5040

D) 1440

Answer: C) 5040

Explanation: The word has 7 distinct letters. The number of arrangements is $7! = 5040$.

48. From 7 men and 6 women, a committee of five is formed with at least 3 men. In how many ways can it be done?

A) 564

B) 645

C) 735

D) 756

Answer: D) 756

Explanation: Ways = $(3M, 2W) + (4M, 1W) + (5M) = ({}^7C_3 \times {}^6C_2) + ({}^7C_4 \times {}^6C_1) + {}^7C_5 = 756$.

49. Evaluate 8P_3 .

A) 336

B) 504

C) 240

D) 120

Answer: A) 336

Explanation: ${}^8P_3 = 8! / (8-3)! = 8 \times 7 \times 6 = 336$.

50. Which of the following is a prime number?

A) 51

B) 87

C) 91

D) 97

Answer: D) 97

Explanation: 97 is only divisible by 1 and itself. $51=3 \times 17$, $87=3 \times 29$, $91=7 \times 13$.

51. The number 33455672 is divisible by:

A) 3

- B) 4
- C) 9
- D) 11

Answer: B) 4

Explanation: A number is divisible by 4 if its last two digits are. 72 is divisible by 4.

52. What is the place value of 5 in the number 357,890?

- A) 5
- B) 500
- C) 5000
- D) 50,000

Answer: D) 50,000

Explanation: The digit 5 is in the ten thousands place, so its value is 50,000.

53. The sum of two numbers is 40 and their difference is 4. The ratio of the numbers is:

- A) 11:9
- B) 11:10
- C) 21:19
- D) 22:9

Answer: A) 11:9

Explanation: The numbers are $(40+4)/2 = 22$ and $(40-4)/2 = 18$. The ratio is 22:18 or 11:9.

54. If one-fifth of a number decreased by 5 is 5, find the number.

- A) 25
- B) 50
- C) 60
- D) 75

Answer: B) 50

Explanation: $(x/5) - 5 = 5 \Rightarrow x/5 = 10 \Rightarrow x = 50$.

55. The sum of three consecutive odd numbers is 57. What is the middle number?

A) 17

B) 19

C) 21

D) 23

Answer: B) 19

Explanation: The middle number is the average of the three numbers: $57 / 3 = 19$.

56. Find the L.C.M of 24, 36 and 40.

A) 120

B) 240

C) 360

D) 480

Answer: C) 360

Explanation: $24=2^3 \times 3$, $36=2^2 \times 3^2$, $40=2^3 \times 5$. L.C.M is the highest power of each prime factor: $2^3 \times 3^2 \times 5 = 360$.

57. Find the H.C.F of 96, 144 and 180.

A) 12

B) 24

C) 36

D) 6

Answer: A) 12

Explanation: $96=2^5 \times 3$, $144=2^4 \times 3^2$, $180=2^2 \times 3^2 \times 5$. H.C.F is the lowest power of common factors: $2^2 \times 3 = 12$.

58. The H.C.F. of two numbers is 11 and their L.C.M. is 7700. If one number is 275, find the other.

A) 279

B) 283

C) 308

D) 318

Answer: C) 308

Explanation: Other number = $(\text{HCF} \times \text{LCM}) / \text{First Number} = (11 \times 7700) / 275 = 308$.

59. Convert $\frac{3}{8}$ to a decimal fraction.

A) 0.125

B) 0.375

C) 0.425

D) 0.625

Answer: B) 0.375

Explanation: 3 divided by 8 is 0.375.

60. What is the sum of $0.25 + 1.3 + 0.005$?

A) 1.555

B) 1.6

C) 1.55

D) 2.555

Answer: A) 1.555

Explanation: Aligning the decimals and adding gives 1.555.

61. What is the value of $100 \times 10 - 100 + 2000 \div 100$?

A) 29

B) 920

C) 980

D) 1000

Answer: B) 920

Explanation: Using order of operations (BODMAS): $1000 - 100 + 20 = 920$.

62. The value of $\frac{1}{2} + \frac{1}{4} \div \frac{1}{4} - \frac{1}{2}$ is:

A) 0

B) $\frac{1}{2}$

C) 1

D) 2

Answer: C) 1

Explanation: $\frac{1}{2} + (\frac{1}{4} * \frac{4}{1}) - \frac{1}{2} = \frac{1}{2} + 1 - \frac{1}{2} = 1.$

63. Simplify: $18 - [5 - \{6 + 2(7 - 8 - 5)\}]$

A) 13

B) 15

C) 7

D) 32

Answer: C) 7

Explanation: $18 - [5 - \{6 + 2(-6)\}] = 18 - [5 - (-6)] = 18 - 11 = 7.$

64. What is the value of $(5+5+5) \div 5 / ((3+3+3) \div 3)$?

A) 1

B) $\frac{3}{2}$

C) $\frac{5}{3}$

D) 3

Answer: A) 1

Explanation: $(15 \div 5) / (9 \div 3) = 3 / 3 = 1.$

65. What is the square root of 529?

A) 21

B) 23

C) 27

D) 29

Answer: B) 23

Explanation: $23 \times 23 = 529.$

66. Find the cube root of 1728.

A) 11

B) 12

C) 13

D) 14

Answer: B) 12

Explanation: $12 \times 12 \times 12 = 1728$.

67. What is the value of $(27)^{2/3}$?

A) 3

B) 6

C) 9

D) 18

Answer: C) 9

Explanation: $(\sqrt[3]{27})^2 = 3^2 = 9$.

68. Simplify $\sqrt{72}$.

A) $3\sqrt{8}$

B) $6\sqrt{2}$

C) $2\sqrt{18}$

D) $4\sqrt{6}$

Answer: B) $6\sqrt{2}$

Explanation: $\sqrt{72} = \sqrt{36 \times 2} = 6\sqrt{2}$.

69. If $A:B = 5:7$ and $B:C = 6:11$, then $A:B:C$ is:

A) 30:42:77

B) 35:49:66

C) 55:77:66

D) 5:13:11

Answer: A) 30:42:77

Explanation: To make B common, multiply first ratio by 6, second by 7. $A:B = 30:42$, $B:C = 42:77$. So, $A:B:C = 30:42:77$.

70. Find the fourth proportional to 4, 9, 12.

A) 18

B) 21

C) 24

D) 27

Answer: D) 27

Explanation: $4/9 = 12/x \Rightarrow 4x = 108 \Rightarrow x = 27$.

71. An amount of ₹735 was divided between A, B, C. If each received ₹25 less, their shares would have been in the ratio 1:3:2. Money received by C was:

A) ₹195

B) ₹200

C) ₹220

D) ₹245

Answer: D) ₹245

Explanation: New amount = $735 - 75 = ₹660$. C's new share is $(2/6) * 660 = ₹220$. Original share = $220 + 25 = ₹245$.

72. If 15 men can do a work in 12 days, how many men will do it in 18 days?

A) 8 men

B) 10 men

C) 12 men

D) 15 men

Answer: B) 10 men

Explanation: $(15 \text{ men} * 12 \text{ days}) / 18 \text{ days} = 10 \text{ men}$.

73. If 20 men build a 56m wall in 6 days, what length can 35 men build in 3 days?

A) 49 metres

B) 52 metres

C) 55 metres

D) 58 metres

Answer: A) 49 metres

Explanation: $(20 * 6) / 56 = (35 * 3) / W2$. Solving for W2 gives 49 metres.

74. Two pipes A and B can fill a tank in 20 and 30 minutes. If used together, how long will it take?

- A) 10 minutes
- B) 12 minutes
- C) 15 minutes
- D) 25 minutes

Answer: B) 12 minutes

Explanation: Time = (Product of times) / (Sum of times) = $(20 * 30) / (20 + 30) = 12$ minutes.

75. A pipe fills a tank in 15 hours. A leak means it takes 20 hours. How long for the leak to empty a full tank?

- A) 40 hours
- B) 50 hours
- C) 60 hours
- D) 70 hours

Answer: C) 60 hours

Explanation: Leak's 1 hr work = $(1/15) - (1/20) = 1/60$. It will take 60 hours to empty the tank.

76. Three pipes A, B, C fill a tank in 6 hours. After 2 hours, C is closed. A and B fill the rest in 7 hours. How long for C alone?

- A) 10 hours
- B) 12 hours
- C) 14 hours
- D) 16 hours

Answer: C) 14 hours

Explanation: (A+B+C)'s 1 hr work = $1/6$. (A+B)'s 1 hr work = $(2/3)/7 = 2/21$. C's 1 hr work = $1/6 - 2/21 = 1/14$. C takes 14 hrs.

77. A man rows downstream at 20 km/hr and upstream at 10 km/hr. Find the speed of the boat in still water.

- A) 12 km/hr
- B) 15 km/hr
- C) 17 km/hr
- D) 18 km/hr

Answer: B) 15 km/hr

Explanation: Speed in still water = (Downstream speed + Upstream speed) / 2 = (20 + 10) / 2 = 15 km/hr.

78. A boat's speed in still water is 8 km/hr, stream is 2 km/hr. It travels to a point and returns in 4 hours. Find the distance.

- A) 15 km
- B) 18 km
- C) 20 km
- D) 22 km

Answer: A) 15 km

Explanation: Downstream speed=10, Upstream=6. Total Time = $d/10 + d/6 = 4$. Solving for d gives 15 km.

79. A man takes twice as long to row upstream as downstream. If stream speed is 5 km/hr, find man's speed in still water.

- A) 10 km/hr
- B) 12 km/hr
- C) 15 km/hr
- D) 20 km/hr

Answer: C) 15 km/hr

Explanation: Let man's speed be x. Time is proportional to 1/speed. $(x+5) = 2(x-5) \Rightarrow x = 15$ km/hr.

80. In what ratio must pulses at ₹15/kg and ₹20/kg be mixed to get a mixture worth ₹16.50/kg?

- A) 3:7
- B) 5:7
- C) 7:3
- D) 7:5

Answer: C) 7:3

Explanation: Using alligation: $(20-16.5) : (16.5-15) \Rightarrow 3.5 : 1.5 \Rightarrow 7:3$.

81. A 40 litre mixture of milk and water has 10% water. How much water must be added to make it 20%?

A) 5 litres

B) 6 litres

C) 7 litres

D) 8 litres

Answer: A) 5 litres

Explanation: Initial water=4L, milk=36L. New mix: $(4+x)/(40+x)=0.2$. Solving gives $x=5$ litres.

82. A can has liquids A and B in ratio 7:5. 9L are drawn off and replaced with B. Ratio becomes 7:9. How much A initially?

A) 10 L

B) 20 L

C) 21 L

D) 25 L

Answer: C) 21 L

Explanation: After removal, the ratio of A to total is still $7/12$. $(7/12) \cdot (\text{Total}-9) = (7/16) \cdot \text{Total}$. Solving gives $\text{Total}=36$. $A = (7/12) \cdot 36 = 21\text{L}$.

83. What is the value of $\log_{10}(1000)$?

A) 2

B) 3

C) 4

D) 10

Answer: B) 3

Explanation: $\log_{10}(10^3) = 3$, because 10 raised to the power of 3 is 1000.

84. If $\log_x(243) = 5$, find the value of x .

A) 2

B) 3

C) 4

D) 5

Answer: B) 3

Explanation: The equation can be written as $x^5 = 243$. We know $3^5 = 243$, so $x = 3$.

85. In a 100m race, A runs at 8 km/hr. A gives B a 4m start and still beats him by 15s. Find B's speed.

- A) 5 km/hr
- B) 5.76 km/hr
- C) 6 km/hr
- D) 6.2 km/hr

Answer: B) 5.76 km/hr

Explanation: Time for A = $100\text{m} / (8 \times 5/18 \text{ m/s}) = 45\text{s}$. B runs 96m in $45+15=60\text{s}$. B's speed = $96/60 = 1.6 \text{ m/s} = 5.76 \text{ km/hr}$.

86. In a 100 point game, A can give B 20 points and C 28 points. B can give C:

- A) 8 points
- B) 10 points
- C) 12 points
- D) 14 points

Answer: B) 10 points

Explanation: When A scores 100, B scores 80 and C scores 72. The ratio of B's score to C's is 80:72 or 10:9. In a 100 point game, B would score 100 while C scores 90. B can give C 10 points.

87. A man invests ₹9600 in a 10% stock at 120. The income is:

- A) ₹800
- B) ₹960
- C) ₹1000
- D) ₹1200

Answer: A) ₹800

Explanation: Number of shares = $9600/120 = 80$. Income = $80 * (10\% \text{ of face value ₹100}) = ₹800$.

88. Which is a better investment: 12% stock at 120 or 8% stock at 96?

- A) 12% stock at 120
- B) 8% stock at 96
- C) Both are equally good
- D) Cannot be determined

Answer: A) 12% stock at 120

Explanation: Return on investment for first: $(12/120) \times 100 = 10\%$. For second: $(8/96) \times 100 = 8.33\%$. The first is better.

89. A single coin is tossed. What is the probability of getting a head?

- A) 1
- B) $1/2$
- C) $1/3$
- D) $1/4$

Answer: B) $1/2$

Explanation: There is 1 head out of 2 possible outcomes (Head, Tail).

90. From a pack of 52 cards, one is drawn. What is the probability of it being a king?

- A) $1/13$
- B) $1/26$
- C) $1/52$
- D) $4/13$

Answer: A) $1/13$

Explanation: There are 4 kings in a 52-card deck. Probability = $4/52 = 1/13$.

91. A single die is rolled. What is the probability of getting a number greater than 4?

- A) $1/2$
- B) $1/3$
- C) $1/4$
- D) $1/6$

Answer: B) $1/3$

Explanation: Favorable outcomes are 5 and 6 (2 outcomes). Total outcomes are 6. Probability = $2/6 = 1/3$.

92. The true discount on a bill of ₹540 due 6 months hence at 6% per annum is:

- A) ₹15
- B) ₹15.73

C) ₹16

D) ₹16.50

Answer: B) ₹15.73

Explanation: True Discount = $(\text{Amount} * R * T) / (100 + RT) = (540 * 6 * 0.5) / (100 + 3) = 1620 / 103 \approx 15.73$.

93. The present worth of a bill due 2 years hence is ₹500. At 5% per annum, what is the bill amount?

A) ₹525

B) ₹550

C) ₹575

D) ₹600

Answer: B) ₹550

Explanation: Interest on Present Worth = $(500 * 5 * 2) / 100 = ₹50$. Bill Amount = PW + Interest = $500 + 50 = ₹550$.

94. The banker's discount on a bill of ₹1250 for 6 months at 6% per annum is:

A) ₹37.50

B) ₹38

C) ₹39.50

D) ₹40

Answer: A) ₹37.50

Explanation: Banker's Discount is the simple interest on the face value = $(1250 * 6 * 0.5) / 100 = ₹37.50$.

95. The banker's gain on a sum due 2 years hence at 10% pa is ₹24. The present worth is:

A) ₹480

B) ₹520

C) ₹600

D) ₹960

Answer: C) ₹600

Explanation: Banker's Gain = $PW * (RT/100)^2$. $24 = PW * (10 * 2 / 100)^2 \Rightarrow PW = ₹600$.

96. Find the next term in the series: 3, 9, 27, 81, ?

A) 162

B) 243

C) 324

D) 210

Answer: B) 243

Explanation: Each term is multiplied by 3 to get the next term. $81 \times 3 = 243$.

97. Find the wrong term in the series: 10, 26, 74, 218, 654, 1946, 5834.

A) 26

B) 74

C) 218

D) 654

Answer: D) 654

Explanation: The pattern is $(\text{Term} \times 3) - 4$. $218 \times 3 - 4 = 650$, but the series has 654.

98. Complete the series: Z, X, V, T, R, ?, ?

A) P, N

B) O, M

C) P, O

D) M, N

Answer: A) P, N

Explanation: The series consists of alternate letters in reverse alphabetical order.

99. Find the next number in the series: 1, 4, 9, 16, 25, ?

A) 35

B) 36

C) 48

D) 49

Answer: B) 36

Explanation: The series consists of the squares of natural numbers ($1^2, 2^2, 3^2, \dots$). The next is $6^2 = 36$.

100. Choose the odd one out:

A) Triangle

B) Square

C) Circle

D) Sphere

Answer: D) Sphere

Explanation: A sphere is a three-dimensional (3D) object, while the others are two-dimensional (2D) shapes.