Apttitude

**1. Number Series**

**Question:** What comes next in the series: 2, 6, 12, 20, 30, \_\_?

**Answer:** 42  
**Explanation:** The pattern is adding consecutive even numbers to the previous term.

* 2 + 4 = 6
* 6 + 6 = 12
* 12 + 8 = 20
* 20 + 10 = 30
* 30 + 12 = 42

**2. Time and Work**

**Question:** A can complete a work in 12 days, and B can complete the same work in 18 days. How many days will it take for both A and B to complete the work together?

**Answer:** 7.2 days  
**Explanation:**  
Work done by A in one day = 1/12  
Work done by B in one day = 1/18  
Work done by A and B together in one day = 1/12 + 1/18 = 5/36  
Total time = 1 / (5/36) = 36/5 = 7.2 days

**3. Simple Interest**

**Question:** What is the simple interest on a sum of $1500 at a rate of 5% per annum for 3 years?

**Answer:** $225  
**Explanation:**  
Simple Interest = (Principal × Rate × Time) / 100  
= (1500 × 5 × 3) / 100  
= 225

**4. Probability**

**Question:** A box contains 3 red balls, 4 blue balls, and 5 green balls. If a ball is drawn at random, what is the probability that it is blue?

**Answer:** 1/3  
**Explanation:**  
Total number of balls = 3 + 4 + 5 = 12  
Probability of drawing a blue ball = Number of blue balls / Total number of balls  
= 4/12 = 1/3

**5. Average**

**Question:** The average of five numbers is 20. If one number is excluded, the average becomes 18. What is the excluded number?

**Answer:** 28  
**Explanation:**  
Total sum of 5 numbers = 20 × 5 = 100  
Total sum of 4 numbers = 18 × 4 = 72  
Excluded number = 100 - 72 = 28

**6. Profit and Loss**

**Question:** A shopkeeper buys an article for $240 and sells it for $300. What is his profit percentage?

**Answer:** 25%  
**Explanation:**  
Profit = Selling Price - Cost Price = 300 - 240 = $60  
Profit Percentage = (Profit / Cost Price) × 100 = (60 / 240) × 100 = 25%

**7. Ratio and Proportion**

**Question:** Divide $600 among A, B, and C in the ratio 3:2:1.

**Answer:** A = $300, B = $200, C = $100  
**Explanation:**  
Total parts = 3 + 2 + 1 = 6  
A's share = (3/6) × 600 = $300  
B's share = (2/6) × 600 = $200  
C's share = (1/6) × 600 = $100

**8. Mixture and Alligation**

**Question:** In what ratio must water be mixed with milk to gain 25% by selling the mixture at cost price?

**Answer:** 1:3  
**Explanation:**  
To gain 25% by selling at cost price, the cost price of the mixture must be 75% of pure milk.  
Let the ratio of water to milk be x

.  
Using the rule of alligation:  
(Milk/Water) = (25/100) / (1 - 25/100) = 1:3

**9. Partnership**

**Question:** A and B start a business together by investing $5000 and $7000, respectively. If the profit at the end of the year is $2400, what is B's share of the profit?

**Answer:** $1400  
**Explanation:**  
A's investment : B's investment = 5000 : 7000 = 5:7  
B's share of profit = (7/12) × 2400 = $1400

**10. Time, Speed, and Distance**

**Question:** A train travels at a speed of 60 km/h. How much time will it take to cover a distance of 180 km?

**Answer:** 3 hours  
**Explanation:**  
Time = Distance / Speed  
= 180 km / 60 km/h = 3 hours

**1. Problem:**

A train running at a speed of 90 km/h crosses a pole in 10 seconds. What is the length of the train?

**Explanation:** Speed = Distance/Time

* Convert speed into m/s: 90×518=25 m/s90 \times \frac{5}{18} = 25 \, \text{m/s}90×185​=25m/s
* Distance = Speed × Time = 25 m/s×10 sec=250 meters25 \, \text{m/s} \times 10 \, \text{sec} = 250 \, \text{meters}25m/s×10sec=250meters

**Answer:** 250 meters

**2. Problem:**

A shopkeeper buys 80 articles at the cost of 70 articles. He marks the selling price 20% above the cost price. Find his profit percentage.

**Explanation:**

* Let cost price of each article be 1 unit.
* Total CP of 80 articles = 80 units.
* Total SP = 1.2×70=84 units1.2 \times 70 = 84 \, \text{units}1.2×70=84units
* Profit % = 84−8080×100=5%\frac{84 - 80}{80} \times 100 = 5\%8084−80​×100=5%

**Answer:** 5%

**3. Problem:**

A mixture contains alcohol and water in the ratio 5:3. How much alcohol must be added to make the ratio 7:3?

**Explanation:**

* Let initial quantities be 5x and 3x.
* New ratio: 5x+y3x=73\frac{5x + y}{3x} = \frac{7}{3}3x5x+y​=37​
* Solve to find y=2xy = 2xy=2x

**Answer:** 2 parts of alcohol

**4. Problem:**

What is the simple interest on Rs. 5000 at a rate of 8% per annum for 3 years?

**Explanation:** SI = P×R×T/100P \times R \times T / 100P×R×T/100

* SI=5000×8×3/100=1200SI = 5000 \times 8 \times 3 / 100 = 1200SI=5000×8×3/100=1200

**Answer:** Rs. 1200

**5. Problem:**

The average of 5 consecutive odd numbers is 27. What is the smallest of these numbers?

**Explanation:**

* Let the numbers be x,x+2,x+4,x+6,x+8x, x+2, x+4, x+6, x+8x,x+2,x+4,x+6,x+8.
* Average = 27, 5x+205=27→x=25 \frac{5x + 20}{5} = 27 \rightarrow x = 2555x+20​=27→x=25

**Answer:** 25

**6. Problem:**

A person covers a distance in 40 minutes at a speed of 6 km/h. What should be his speed to cover the same distance in 30 minutes?

**Explanation:**

* Distance = Speed × Time = 6×23=4 km6 \times \frac{2}{3} = 4 \, \text{km}6×32​=4km
* New Speed = Distance / Time = 4 km/12 hr=8 km/h4 \, \text{km} / \frac{1}{2} \, \text{hr} = 8 \, \text{km/h}4km/21​hr=8km/h

**Answer:** 8 km/h

**7. Problem:**

A and B together can complete a work in 8 days. A alone can complete it in 12 days. In how many days can B alone complete it?

**Explanation:**

* Let B's work rate be 1/x1/x1/x.
* 112+1x=18→x=24 days \frac{1}{12} + \frac{1}{x} = \frac{1}{8} \rightarrow x = 24 \, \text{days}121​+x1​=81​→x=24days

**Answer:** 24 days

**8. Problem:**

A man buys an article for Rs. 2400 and sells it at a loss of 20%. What is the selling price?

**Explanation:**

* SP = CP × (1 - \frac{\text{Loss%}}{100})
* SP=2400×(1−0.2)=2400×0.8=1920SP = 2400 \times (1 - 0.2) = 2400 \times 0.8 = 1920SP=2400×(1−0.2)=2400×0.8=1920

**Answer:** Rs. 1920

**9. Problem:**

A car covers a certain distance in 2 hours at a speed of 60 km/h. How long will it take to cover the same distance at a speed of 80 km/h?

**Explanation:**

* Distance = Speed × Time = 60×2=120 km60 \times 2 = 120 \, \text{km}60×2=120km
* Time = Distance / Speed = 120/80=1.5 hours120 / 80 = 1.5 \, \text{hours}120/80=1.5hours

**Answer:** 1.5 hours

**10. Problem:**

What is the least number which when divided by 20, 25, 35, and 40 leaves remainders 14, 19, 29, and 34 respectively?

**Explanation:**

* Let number be xxx.
* x=LCM(20,25,35,40)−6=1400−6=1394x = LCM(20, 25, 35, 40) - 6 = 1400 - 6 = 1394x=LCM(20,25,35,40)−6=1400−6=1394

**Answer:** 1394

**11. Problem:**

If 15 workers can build a wall in 48 hours, how long will it take 20 workers to build the same wall?

**Explanation:**

* Total work = 15 × 48 = 720 worker-hours.
* Time taken by 20 workers = 720/20 = 36 hours.

**Answer:** 36 hours

**12. Problem:**

A man spends 75% of his income. His income increases by 20%, and his expenditure also increases by 10%. Find the percentage increase in his savings.

**Explanation:**

* Let income = 100, savings = 25.
* New income = 120, new expenditure = 82.5.
* New savings = 120 - 82.5 = 37.5.
* Increase in savings = 37.5−2525×100=50% \frac{37.5 - 25}{25} \times 100 = 50\%2537.5−25​×100=50%

**Answer:** 50%

**13. Problem:**

If the selling price of 16 articles is equal to the cost price of 20 articles, find the profit percentage.

**Explanation:**

* Let CP of 1 article = 1 unit.
* SP = 20/16=1.2520/16 = 1.2520/16=1.25 units.
* Profit % = 1.25−11×100=25% \frac{1.25 - 1}{1} \times 100 = 25\%11.25−1​×100=25%

**Answer:** 25%

**14. Problem:**

Two pipes can fill a tank in 12 minutes and 18 minutes respectively. How long will it take to fill the tank if both pipes are opened together?

**Explanation:**

* Work done by both pipes per minute = 112+118=536 \frac{1}{12} + \frac{1}{18} = \frac{5}{36}121​+181​=365​.
* Time taken = 36/5=7.236/5 = 7.236/5=7.2 minutes.

**Answer:** 7.2 minutes

**15. Problem:**

A train travels at a speed of 72 km/h. How many meters will it travel in 15 minutes?

**Explanation:**

* Convert speed into m/s: 72×518=20 m/s72 \times \frac{5}{18} = 20 \, \text{m/s}72×185​=20m/s
* Distance = Speed × Time = 20×900=18000 meters20 \times 900 = 18000 \, \text{meters}20×900=18000meters

**Answer:** 18,000 meters

**16. Problem:**

The ratio of ages of two persons is 4:3. After 6 years, the ratio of their ages will be 5:4. What are their current ages?

**Explanation:**

* Let their ages be 4x and 3x.
* 4x+63x+6=54→x=6 \frac{4x + 6}{3x + 6} = \frac{5}{4} \rightarrow x = 63x+64x+6​=45​→x=6.
* Ages: 24 years and 18 years.

**Answer:** 24 years and 18 years

**17. Problem:**

What is the area of a circle with a diameter of 14 cm?

**Explanation:**

* Radius = 7 cm.
* Area = πr2=π×72=154 cm2 \pi r^2 = \pi \times 7^2 = 154 \, \text{cm}^2πr2=π×72=154cm2.

**Answer:** 154 cm²

**18. Problem:**

A car is sold at a loss of 5%. Had it been sold for Rs. 4000 more, there would have been a gain of 5%. Find the cost price.

**Explanation:**

* Let CP be xxx.
* (x+4000)−xx=10% \frac{(x + 4000) - x}{x} = 10\%x(x+4000)−x​=10%
* Solving gives: x=40000x = 40000x=40000.

**Answer:** Rs. 40,000

**19. Problem:**

A sum of money becomes double in 5 years at simple interest. In how many years will it become four times?

**Explanation:**

* Simple Interest = P × R × T / 100.
* Given: (2P = P(1 +