

1. How much time will it take for an amount of Rs. 900 to yield Rs. 81 as interest at 4.5% per annum of simple interest?

A. 2 years

B. 3 years

C. 1 year

D. 4 years

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Here is the answer and explanation

Answer : Option A

Explanation :

P = Rs.900

SI = Rs.81

T = ?

R = 4.5%

$$T = \frac{100 \times SI}{PR} = \frac{100 \times 81}{900 \times 4.5} = 2 \text{ years}$$

2. Arun took a loan of Rs. 1400 with simple interest for as many years as the rate of interest. If he paid Rs.686 as interest at the end of the loan period, what was the rate of interest?

A. 8%

B. 6%

C. 4%

D. 7%

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Answer : Option D

Explanation :

Let rate = R%

Then, Time, T = R years

P = Rs.1400

SI = Rs.686

$$SI = \frac{PRT}{100}$$

$$\Rightarrow 686 = \frac{1400 \times R \times R}{100}$$

$$\Rightarrow 686 = 14 R^2$$

$$\Rightarrow 49 = R^2$$

$$\Rightarrow R = 7$$

i.e.,Rate of Interest was 7%

3. A sum of money at simple interest amounts to Rs. 815 in 3 years and to Rs. 854 in 4 years. The sum is :

A. Rs. 700

B. Rs. 690

C. Rs. 650

D. Rs. 698

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Answer : Option D

Explanation :

Simple Interest (SI) for 1 year = 854-815 = 39

Simple Interest (SI) for 3 years = 39 × 3 = 117

Principal = 815 - 117 = Rs.698

4. A sum fetched a total simple interest of Rs. 929.20 at the rate of 8 p.c.p.a. in 5 years. What is the sum?

A. Rs. 2323

B. Rs. 1223

C. Rs. 2563

D. Rs. 2353

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Answer : Option A

Explanation :

SI = Rs.929.20

P = ?

T = 5 years

R = 8%

$$P = \frac{100 \times SI}{RT} = \frac{100 \times 929.20}{8 \times 5} = \text{Rs.}2323$$

5. Mr. Thomas invested an amount of Rs. 13,900 divided in two different schemes A and B at the simple interest rate of 14% p.a. and 11% p.a. respectively. If the total amount of simple interest earned in 2 years be Rs. 3508, what was the amount invested in Scheme B?

A. Rs. 6400

B. Rs. 7200

C. Rs. 6500

D. Rs. 7500

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Answer : Option A

Explanation :

Let the investment in scheme A be Rs.x

and the investment in scheme B be Rs.(13900 - x)

$$\text{We know that SI} = \frac{\text{PRT}}{100}$$

$$\text{Simple Interest for Rs.x in 2 years at 14\% p.a.} = \frac{x \times 14 \times 2}{100} = \frac{28x}{100}$$

$$\text{Simple Interest for Rs.(13900 - x) in 2 years at 11\% p.a.} = \frac{(13900 - x) \times 11 \times 2}{100} = \frac{22(13900 - x)}{100}$$

Total interest = Rs.3508

$$\frac{28x}{100} + \frac{22(13900 - x)}{100} = 3508$$

$$28x + 305800 - 22x = 350800$$

$$6x = 45000$$

$$x = \frac{45000}{6} = 7500$$

Investment in scheme B = 13900 - 7500 = Rs.6400

6. A person borrows Rs.5000 for 2 years at 4% p.a. simple interest. He immediately lends it to another person at $6\frac{1}{4}\%$ p.a for 2 years. Find his gain in the transaction per year.

A. Rs. 167.50

B. Rs. 150

C. Rs.225

D. Rs. 112.50

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Answer : Option D

Explanation :

Solution 1

The person borrows Rs. 5000 for 2 years at 4% p.a. simple interest

$$\text{Simple interest that he needs to pay} = \frac{\text{PRT}}{100} = \frac{5000 \times 4 \times 2}{100} = 400$$

He also lends it at $6\frac{1}{4}\%$ p.a for 2 years

$$\text{Simple interest that he gets} = \frac{\text{PRT}}{100} = \frac{5000 \times \frac{25}{4} \times 2}{100} = 625$$

His overall gain in 2 years = Rs.625 - Rs.400 = Rs.225

$$\text{His overall gain in 1 year} = \frac{225}{2} = \text{Rs.112.5}$$

Solution 2

The person borrows Rs. 5000 for 2 years at 4% p.a. simple interest

He also lends it at $6\frac{1}{4}\%$ p.a for 2 years

$$6\frac{1}{4}\% - 4\% = 2\frac{1}{4}\%$$

So his gain in the transaction for 1 year

= The simple interest he gets for Rs.5000 for 1 year at $2\frac{1}{4}\%$ per annum

$$= \frac{\text{PRT}}{100} = \frac{5000 \times \frac{9}{4} \times 1}{100} = 112.5$$

7. What will be the ratio of simple interest earned by certain amount at the same rate of interest for 5 years and that for 15 years?

A. 3 : 2

B. 1 : 3

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Answer : Option B

Explanation :

Solution 1

Let Principal = P

Rate of Interest = R%

$$\text{Required Ratio} = \frac{\left(\frac{PR \times 5}{100}\right)}{\left(\frac{PR \times 15}{100}\right)} = \frac{5}{15} = \frac{1}{3} = 1 : 3$$

Solution 2

$$\text{Simple Interest} = \frac{PRT}{100}$$

Here Principal(P) and Rate of Interest (R) are constants

Hence, Simple Interest \propto T

$$\text{Required Ratio} = \frac{\text{Simple Interest for 5 years}}{\text{Simple Interest for 15 years}} = \frac{T_1}{T_2} = \frac{5}{15} = \frac{1}{3} = 1 : 3$$

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

A. 15%

B. 12%

C. 8%

D. 5%

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Answer : Option B

Explanation :

Simple Interest for 3 years = (Rs.12005 - Rs.9800) = Rs.2205

$$\text{Simple Interest for 5 years} = \frac{2205}{3} \times 5 = \text{Rs.3675}$$

Principal(P) = (Rs.9800 - Rs.3675) = Rs.6125

$$R = \frac{100 \times SI}{PT} = \frac{100 \times 3675}{6125 \times 5} = 12\%$$

9. A certain amount earns simple interest of Rs. 1200 after 10 years. Had the interest been 2% more, how much more interest would it have earned?

- A. Rs. 25 B. None of these
C. Rs. 120 D. Cannot be determined

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Answer : Option D

Explanation :

Since we do not have the principal and rate of interest, we can not find out the required details.

10. A man took loan from a bank at the rate of 8% p.a. simple interest. After 4 years he had to pay Rs. 6200 interest only for the period. The principal amount borrowed by him was:

- A. Rs.17322 B. Rs.20245
C. Rs.18230 D. Rs.19375

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Answer : Option D

Explanation :

Principal(P) = ?

Time(T) = 4 years

Simple Interest(SI) = Rs.6200

R = 8%

$$P = \frac{100 \times SI}{RT} = \frac{100 \times 6200}{8 \times 4} = \text{Rs.}19375$$

11. A sum of Rs. 14,000 amounts to Rs. 22,400 in 12 years at the rate of simple interest. What is the rate of interest?

- A. 7% B. 6%
C. 5% D. 4%

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Answer : Option C

Explanation :

Simple Interest for 4 years (SI) = (22400 - 14000) = Rs.8400

R = ?

T = 12 years

P = Rs. 14000

$$R = \frac{100 \times SI}{PT} = \frac{100 \times 8400}{14000 \times 12} = 5\%$$

12. A sum of Rs. 725 is lent in the beginning of a year at a certain rate of interest. After 8 months, a sum of Rs. 362.50 more is lent but at the rate twice the former. At the end of the year, Rs. 33.50 is earned as interest from both the loans. What was the original rate of interest?

- A. 3.46% B. None of these
C. 4.5% D. 5%

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Answer : Option A

Explanation :

Let the sum of Rs.725 is lent out at rate R% for 1 year

Then, at the end of 8 months, ad additional sum of 362.50 more is lent out at rate 2R% for remaining 4 months(1/3 year)

Total Simple Interest = 33.50

$$\Rightarrow \frac{725 \times R \times 1}{100} + \frac{362.50 \times 2R \times \frac{1}{3}}{100} = 33.50$$

$$\Rightarrow \frac{725 \times R \times 1}{100} + \frac{362.50 \times 2R}{300} = 33.50$$

$$\Rightarrow \frac{725R}{100} + \frac{725R}{300} = 33.50$$

$$\Rightarrow 725R \left(\frac{1}{100} + \frac{1}{300} \right) = 33.50$$

$$\Rightarrow 725R \left(\frac{4}{300} \right) = 33.50$$

$$\Rightarrow 725R \times 4 = 10050$$

$$\Rightarrow 725R = 2512.5$$

$$\Rightarrow 145R = 502.5$$

$$\Rightarrow R = \frac{502.5}{145} = 3.46\%$$

13. An automobile financier claims to be lending money at simple interest, but he includes the interest every six months for calculating the principal. If he is charging an interest of 10%, the effective rate of interest after one year becomes:

- A. None of these B. 10.25%
C. 10.5% D. 10%

[Here is the answer and explanation](#)

Answer : Option B

Explanation :

Let the automobile financier lends Rs.100

$$\text{Simple Interest for first 6 months} = \frac{PRT}{100} = \frac{100 \times 10 \times \frac{1}{2}}{100} = \text{Rs. 5}$$

After 6 months, he adds the simple interest to principal

i.e., after 6 months, principal becomes Rs.100 + Rs.5 = Rs.105

$$\text{Simple Interest for next 6 months} = \frac{PRT}{100} = \frac{105 \times 10 \times \frac{1}{2}}{100} = \text{Rs. 5.25}$$

Amount at the end of 1 year = Rs.105 + Rs. 5.25 = Rs.110.25

i.e., Effective Simple Interest he gets for Rs.100 for 1 year = 110.25 - 100 = 10.25

i.e, the Effective Rate of Interest = 10.25%

$$(\because R = \frac{100 \times SI}{PT} = \frac{100 \times 10.25}{100 \times 1} = 10.25\%)$$

14. A lent Rs. 5000 to B for 2 years and Rs. 3000 to C for 4 years on simple interest at the same rate of interest and received Rs. 2200 in all from both of them as interest. The rate of interest per annum is:

- A. 5%
- B. 10%
- C. 7%
- D. 8%

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Answer : Option B

Explanation :

Let the rate of interest per annum be R%

Simple Interest for Rs. 5000 for 2 years at rate R% per annum + Simple Interest for Rs. 3000 for 4 years at rate R% per annum = Rs.2200

$$\Rightarrow \frac{5000 \times R \times 2}{100} + \frac{3000 \times R \times 4}{100} = 2200$$

$$\Rightarrow 100R + 120R = 2200$$

$$\Rightarrow 220R = 2200$$

$$\Rightarrow R = 10$$

i.e, Rate = 10%.

15. What annual payment will discharge a debt of Rs. 6450 due in 4 years at 5% per annum?

- A. Rs.1500
- B. Rs.1400
- C. Rs.1800
- D. Rs.1600

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Answer : Option A

Explanation :

Solution 1

The amount needs to be repaid in 4 years = Rs.6450

Suppose Rs.x is paid annually to repay this debt

Then, amount paid after 1st year = Rs.x

$$\text{Interest for this Rs. } x \text{ for the remaining 3 years} = \frac{x \times 5 \times 3}{100} = \frac{15x}{100}$$

Then, amount paid after 2nd year = Rs. x

$$\text{Interest for this Rs. } x \text{ for the remaining 2 years} = \frac{x \times 5 \times 2}{100} = \frac{10x}{100}$$

Amount paid after 3rd year = Rs. x

$$\text{Interest for this Rs. } x \text{ for the remaining 1 year} = \frac{x \times 5 \times 1}{100} = \frac{5x}{100}$$

Amount paid after 4th year = Rs. x and this closes the entire debt

$$\Rightarrow x + \frac{15x}{100} + x + \frac{10x}{100} + x + \frac{5x}{100} + x = 6450$$

$$\Rightarrow 4x + \frac{30x}{100} = 6450$$

$$\Rightarrow 4x + \frac{3x}{10} = 6450$$

$$\Rightarrow 40x + 3x = 64500$$

$$\Rightarrow 43x = 64500$$

$$\Rightarrow x = 1500$$

Solution 2 (using formula)

The annual instalment which will discharge a debt of D due in T years at R% simple interest per annum

$$= \frac{100D}{100T + \frac{RT(T-1)}{2}}$$

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$$\text{As per the above formula, the annual payment} = \frac{100D}{100T + \frac{RT(T-1)}{2}}$$

$$= \frac{100 \times 6450}{100 \times 4 + \frac{5 \times 4 \times (4-1)}{2}} = \frac{645000}{400 + 30} = \frac{645000}{430} = 1500$$

16. A lends Rs. 1500 to B and a certain sum to C at the same time at 8% per annum simple interest. If after 4 years, A altogether receives Rs. 1400 as interest from B and C, then the sum lent to C is

A. Rs.2875

B. Rs.1885

C. Rs.2245

D. Rs.2615

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Answer : Option A

Explanation :

Let the sum lent to C be Rs. x

Simple Interest for Rs.1500 at 8% per annum for 4 years

+ Simple Interest for Rs.x at 8% per annum for 4 years = Rs.1400

$$\Rightarrow \frac{1500 \times 8 \times 4}{100} + \frac{x \times 8 \times 4}{100} = 1400$$

$$\Rightarrow 480 + \frac{32x}{100} = 1400$$

$$\Rightarrow \frac{32x}{100} = 920$$

$$\Rightarrow x = \frac{920 \times 100}{32} = 2875$$

17. A sum of Rs. 10 is given as a loan to be returned in 6 monthly installments at Rs.3. What is the rate of interest?

A. 820%

B. 620%

C. 780%

D. 640%

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Answer : Option D

Explanation :

Amount borrowed = Rs.10

Let rate of interest = R%

$$\text{Simple Interest for Rs.10 for 6 months at R\%} = \frac{10 \times R \times \frac{1}{2}}{100} = \frac{R}{20}$$

i.e, $10 + \frac{R}{20}$ is due in 6 months

Payment after 1st month = Rs.3

$$\text{Interest for this Rs.3 for the remaining 5 months} = \frac{3 \times R \times \frac{5}{12}}{100}$$

Payment after 2nd month = Rs.3

$$\text{Interest for this Rs.3 for the remaining 4 months} = \frac{3 \times R \times \frac{4}{12}}{100}$$

...

Payment after 5th month = Rs.3

$$\text{Interest for this Rs.3 for the remaining 1 month} = \frac{3 \times R \times \frac{1}{12}}{100}$$

Payment after 6th month = Rs.3 and this closes the loan

$$\Rightarrow (3 + 3 + 3 + 3 + 3 + 3) + \frac{3 \times R \times \frac{5}{12}}{100} + \frac{3 \times R \times \frac{4}{12}}{100} + \dots + \frac{3 \times R \times \frac{1}{12}}{100} = 10 + \frac{R}{20}$$

$$18 + \frac{\frac{3R}{12} (5 + 4 + \dots + 1)}{100} = 10 + \frac{R}{20}$$

$$18 + \frac{15R}{400} = 10 + \frac{R}{20}$$

$$8 = \frac{R}{20} - \frac{15R}{400} = \frac{5R}{400} = \frac{R}{80}$$

$$R = 640\%$$

18. If the simple interest on a certain sum of money after $3\frac{1}{8}$ years is $\frac{1}{4}$ of the principal, what is the rate of interest per annum?

A. 6%

B. 4%

C. 8%

D. 12%

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Answer : Option C

Explanation :

Let the the sum of money(P) be Rs.x

$$\text{Time(T)} = 3\frac{1}{8} \text{ Years} = \frac{25}{8} \text{ Years}$$

$$\text{Simple interest (SI)} = \frac{x}{4}$$

$$\text{Rate of interest per annum(R)} = \frac{100 \times \text{SI}}{\text{PT}} = \frac{100 \times \frac{x}{4}}{x \times \frac{25}{8}} = \frac{100 \times x \times 8}{4 \times x \times 25} = 8\%$$

19. If a sum of Rs. 9 is lent to be paid back in 10 equal monthly installments of re. 1 each, then the rate of interest is

A. 11.33%

B. 11%

C. 266.67%

D. 26.67%

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Answer : Option D

Explanation :

Amount borrowed = Rs.9

Let rate of interest = R%

$$\text{Simple Interest for Rs.9 for 10 months at R\%} = \frac{9 \times R \times \frac{10}{12}}{100} = \frac{90R}{1200}$$

i.e., $9 + \frac{90R}{1200}$ is due in 10 months

Payment after 1st month = Rs.1

$$\text{Interest for this Rs.1 for the remaining 9 months} = \frac{1 \times R \times \frac{9}{12}}{100}$$

Payment after 2nd month = Rs.1

$$\text{Interest for this Rs.1 for the remaining 8 months} = \frac{1 \times R \times \frac{8}{12}}{100}$$

...

Payment after 9th month = Rs.1

$$\text{Interest for this Rs.1 for the remaining 1 month} = \frac{1 \times R \times \frac{1}{12}}{100}$$

Payment after 10th month = Rs.1 and this closes the loan

$$9 + \frac{90R}{1200} = 10 \times 1 + \frac{1 \times R \times \frac{9}{12}}{100} + \frac{1 \times R \times \frac{8}{12}}{100} + \dots + \frac{1 \times R \times \frac{1}{12}}{100}$$

$$9 + \frac{90R}{1200} = 10 + \frac{R}{1200} (9 + 8 + \dots + 1)$$

$$9 + \frac{90R}{1200} = 10 + \frac{R}{1200} \left(\frac{9 \times 10}{2} \right)$$

$$9 + \frac{90R}{1200} = 10 + \frac{45R}{1200}$$

$$\frac{45R}{1200} = 1$$

$$R = \frac{1200}{45} = 26.67\%$$

20. Divide Rs. 2379 into 3 parts so that their amount after 2,3 and 4 years respectively may be equal, the rate of interest being 5% per annum at simple interest. The first part is

A. Rs. 828

B. Rs. 746

C. Rs. 248

D. Rs. 1024

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Answer : Option A

Explanation :

Let the parts be x, y and z

R = 5%

x + interest on x for 2 years = y + interest on y for 3 years = z + interest on z for 4 years

$$\left(x + \frac{x \times 5 \times 2}{100}\right) = \left(y + \frac{y \times 5 \times 3}{100}\right) = \left(z + \frac{z \times 5 \times 4}{100}\right)$$

$$\left(x + \frac{x}{10}\right) = \left(y + \frac{3y}{20}\right) = \left(z + \frac{z}{5}\right)$$

$$\frac{11x}{10} = \frac{23y}{20} = \frac{6z}{5}$$

$$\text{Let } \frac{11x}{10} = \frac{23y}{20} = \frac{6z}{5} = k \quad (\text{where } k \text{ is a constant})$$

$$\text{Then, } x = \frac{10k}{11}, \quad y = \frac{20k}{23}, \quad z = \frac{5k}{6}$$

we know that $x + y + z = 2379$

$$\frac{10k}{11} + \frac{20k}{23} + \frac{5k}{6} = 2379$$

$$10k \times 23 \times 6 + 20k \times 11 \times 6 + 5k \times 11 \times 23 = 2379 \times 11 \times 23 \times 6$$

$$1380k + 1320k + 1265k = 2379 \times 11 \times 23 \times 6$$

$$3965k = 2379 \times 11 \times 23 \times 6$$

$$k = \frac{2379 \times 11 \times 23 \times 6}{3965}$$

$$\text{First part, } x = \frac{10k}{11} = \frac{10}{11} \times \frac{2379 \times 11 \times 23 \times 6}{3965} = \frac{10 \times 2379 \times 23 \times 6}{3965}$$

$$= \frac{2 \times 2379 \times 23 \times 6}{793} = 2 \times 3 \times 23 \times 6 = 828$$

21. In how many years, Rs. 150 will produce the same interest at 6% as Rs. 800 produce in 2 years at $4\frac{1}{2}\%$?

A. 4 years

B. 6 years

C. 8 years

D. 9 years

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Answer : Option C

Explanation :

Let Simple Interest for Rs.150 at 6% for n years = Simple Interest for Rs.800 at $4\frac{1}{2}\%$ for 2 years

$$\frac{150 \times 6 \times n}{100} = \frac{800 \times \frac{9}{2} \times 2}{100}$$

$$150 \times 6 \times n = 800 \times \frac{9}{2} \times 2$$

$$150 \times 6 \times n = 800 \times 9$$

$$3 \times 6 \times n = 16 \times 9$$

$$6 \times n = 16 \times 3$$

$$2 \times n = 16$$

$$n = 8 \text{ years}$$

22. A sum of Rs. 2500 amounts to Rs. 3875 in 4 years at the rate of simple interest. What is the rate of interest?

A. 12.25%

B. 12%

C. 6%

D. 13.75%

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Answer : Option D

Explanation :

Simple Interest, SI = (3875 - 2500) = Rs.1375

Principal, P = Rs. 2500

Time, T = 4 years

R = ?

$$R = \frac{100 \times SI}{PT} = \frac{100 \times 1375}{2500 \times 4} = \frac{100 \times 1375}{10000} = 13.75\%$$

23. What is the interest due after 40 days for Rs. 3200 at 10%

- A. 35.07 B. 36.21
C. 35.52 D. 34

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Answer : Option A

Explanation :

$$\text{Simple Interest, SI} = \frac{PRT}{100} = \frac{3200 \times 10 \times \frac{40}{365}}{100} = 35.07$$

24. What is the rate of interest at which Rs.150 becomes Rs. 220 in 10 years.

- A. $\frac{11}{3}$ % B. $\frac{14}{3}$ %
C. 12% D. 14%

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Answer : Option B

Explanation :

Simple Interest, SI = 220 - 150 = Rs.70

$$R = \frac{100 \times SI}{PT} = \frac{100 \times 70}{150 \times 10} = \frac{2 \times 7}{3} = \frac{14}{3} \%$$

25. A person invested in all Rs. 2600 at 4%, 6% and 8% per annum simple interest. At the end of the year, he got the same interest in all three cases. The money invested at 4% is:

- A. Rs.2200 B. Rs.800
C. Rs.1600 D. Rs.1200

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Answer : Option D

Explanation :

Let x , y and x be his investments at 4%, 6% and 8% respectively

Simple Interest on x at 4% for 1 year

= Simple Interest on y at 6% for 1 year

= Simple Interest on z at 8% for 1 year

$$\frac{x \times 4 \times 1}{100} = \frac{y \times 6 \times 1}{100} = \frac{z \times 8 \times 1}{100}$$

$$\Rightarrow 4x = 6y = 8z$$

$$\Rightarrow 2x = 3y = 4z$$

$$\text{Hence, we have, } y = \frac{2x}{3} \text{ and } z = \frac{2x}{4} = \frac{x}{2}$$

we know that $x + y + z = 2600$

$$\Rightarrow x + \frac{2x}{3} + \frac{x}{2} = 2600$$

$$\Rightarrow 6x + 4x + 3x = 2600 \times 6$$

$$\Rightarrow 13x = 2600 \times 6$$

$$\Rightarrow x = \frac{2600 \times 6}{13} = 200 \times 6 = 1200$$

i.e., Money invested at 4% = Rs.1200

26. David invested certain amount in three different schemes A, B and C with the rate of interest 10% p.a., 12% p.a. and 15% p.a. respectively. If the total interest accrued in one year was Rs. 3200 and the amount invested in Scheme C was 150% of the amount invested in Scheme A and 240% of the amount invested in Scheme B, what was the amount invested in Scheme B?

A. Rs.5000

B. Rs.2000

C. Rs.6000

D. Rs.3000

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Answer : Option A

Explanation :

Let x , y and z be his investments in A, B and C respectively. Then

Then, Interest on x at 10% for 1 year

+ Interest on y at 12% for 1 year

+ Interest on z at 15% for 1 year

= 3200

$$\frac{x \times 10 \times 1}{100} + \frac{y \times 12 \times 1}{100} + \frac{z \times 15 \times 1}{100} = 3200$$

$$\Rightarrow 10x + 12y + 15z = 320000 \quad \text{--- (1)}$$

Amount invested in Scheme C was 240% of the amount invested in Scheme B

$$\Rightarrow z = \frac{240y}{100} = \frac{60y}{25} = \frac{12y}{5} \quad \text{--- (2)}$$

Amount invested in Scheme C was 150% of the amount invested in Scheme A

$$\Rightarrow z = \frac{150x}{100} = \frac{3x}{2}$$

$$\Rightarrow x = \frac{2z}{3} = \frac{2}{3} \times \frac{12y}{5} = \frac{8y}{5} \quad \text{--- (3)}$$

From(1),(2) and (3),

$$10x + 12y + 15z = 320000$$

$$10\left(\frac{8y}{5}\right) + 12y + 15\left(\frac{12y}{5}\right) = 320000$$

$$16y + 12y + 36y = 320000$$

$$64y = 320000$$

$$y = \frac{320000}{64} = \frac{10000}{2} = 5000$$

i.e., Amount invested in Scheme B = Rs.5000

27. A sum of Rs. 1550 was lent partly at 5% and partly at 8% p.a. simple interest. The total interest received after 3 years was Rs. 300. The ratio of the money lent at 5% to that lent at 8% is:

A. 16 : 15

B. 15 : 16

C. 15 : 8

D. 8 : 15

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Answer : Option A

Explanation :

Let the partial amount at 5% be x and the partial amount at 8% be (1550-x)

Interest on x at 5% for 3 years + interest on (1550-x) at 8% for 3 years = 300

$$\frac{x \times 5 \times 3}{100} + \frac{(1550-x) \times 8 \times 3}{100} = 300$$

$$\frac{x \times 5}{100} + \frac{(1550-x) \times 8}{100} = 100$$

$$5x + 8(1550 - x) = 10000$$

$$5x + 12400 - 8x = 10000$$

$$3x = 2400$$

$$x = 800$$

Required Ratio = x : (1550-x) = 800 : (1550-800) = 800 : 750 = 16 : 15

28. A sum of money doubles in 12 years. In how many years, it will treble at S.I.

A. 12 years

B. 8 years

C. 6 years

D. 24 years

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Answer : Option D

Explanation :

$$\text{Simple Interest, SI} = \frac{PRT}{100}$$

i.e, $SI \propto T$ when rate(R) and principal (P) are constants

Let x be the sum of money and which will treble in n years

(Please note that when the money doubles, simple interest is $2x - x = x$

and when the money trebles, simple interest is $3x - x = 2x$)

$$(2x-x) \propto 12$$

$$\Rightarrow x \propto 12 \text{ -----(1)}$$

$$(3x-x) \propto n$$

$$\Rightarrow 2x \propto n \text{ -----(2)}$$

From (1) and (2),

$$\frac{x}{2x} = \frac{12}{n}$$

$$\frac{1}{2} = \frac{12}{n}$$

$$\Rightarrow n = 24 \text{ years}$$

i.e, in 24 years, the money will treble.

29. A man invests a certain sum of money at 6% per annum simple interest and another sum at 7% per annum simple interest. His income from interest after 2 years was Rs. 354. One-fourth of the first sum is equal to one-fifth of the second sum. The total sum invested was :

A. Rs.3100

B. Rs.2700

C. Rs.2200

D. Rs.1800

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Answer : Option B

Explanation :

Let the man invests Rs.x at 6% and Rs.y at 7%

Simple Interest on Rs.x at 6% for 2 years + Simple Interest on Rs.y at 7% for 2 years = Rs.354

$$\frac{x \times 6 \times 2}{100} + \frac{y \times 7 \times 2}{100} = 354$$

$$x \times 6 \times 2 + y \times 7 \times 2 = 354 \times 100$$

$$x \times 6 + y \times 7 = 177 \times 100$$

$$6x + 7y = 17700 \quad \dots (1)$$

One-fourth of the first sum is equal to one-fifth of the second sum

$$\Rightarrow \frac{x}{4} = \frac{y}{5}$$

$$\Rightarrow x = \frac{4y}{5} \quad \dots (2)$$

Solving (1) and (2),

$$6x + 7y = 17700$$

$$6\left(\frac{4y}{5}\right) + 7y = 17700$$

$$24y + 35y = 17700 \times 5$$

$$59y = 17700 \times 5$$

$$y = 300 \times 5 = 1500$$

$$x = \frac{4y}{5} = \frac{4 \times 1500}{5} = 4 \times 300 = 1200$$

$$\text{total sum invested} = x + y = 1500 + 1200 = 2700$$

30. The interest on a certain deposit at 5% per annum is Rs. 101.20 in one year. How much will the additional interest in one year be on the same deposit at 6% per annum?

A. Rs.20.8

B. Rs.19.74

C. Rs.20.24

D. Rs.19.5

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Answer : Option C

Explanation :

Solution 1

$$\text{Principal, } P = \frac{100 \times \text{SI}}{\text{RT}} = \frac{100 \times 101.20}{5 \times 1} = 20 \times 101.20 = \text{Rs. } 2024$$

$$\text{Simple Interest for Rs.2024 at 6\% per annum for 1 year, SI} = \frac{2024 \times 6 \times 1}{100} = 121.44$$

$$\text{Additional Interest} = \text{Rs.}121.44 - \text{Rs.}101.20 = \text{Rs.}20.24$$

Solution 2

$$\text{Principal, } P = \frac{100 \times \text{SI}}{\text{RT}} = \frac{100 \times 101.20}{5 \times 1} = 20 \times 101.20 = \text{Rs. } 2024$$

All parameters remains same except the increase in interest rate.

$$\text{and additional Interest Rate} = 6\% - 5\% = 1\%$$

$$\begin{aligned} \text{Hence, Additional Interest} &= \text{Simple Interest for Rs.2024 at 1\% per annum for 1 year} \\ &= \frac{2024 \times 1 \times 1}{100} = 20.24 \end{aligned}$$

1. The price of 80 apples is equal to that of 120 oranges. The price of 60 apples and 75 oranges together is Rs.1320. The total price of 25 apples and 40 oranges is

A. Rs. 660

B. Rs. 620

C. Rs. 820

D. Rs. 780

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Answer : Option B

Explanation :

Let the price of one apple = a and price of one orange = b

The price of 80 apples is equal to that of 120 oranges

$$80a = 120b$$

$$\Rightarrow 2a = 3b$$

$$\Rightarrow b = \frac{2a}{3} \text{ -----(Equation 1)}$$

price of 60 apples and 75 oranges together is Rs.1320

$$\Rightarrow 60a + 75b = 1320$$

$$\Rightarrow 4a + 5b = 88$$

$$\Rightarrow 4a + \frac{5(2a)}{3} = 88 \quad (\because \text{Substituted the value of b from equation 1})$$

$$\Rightarrow 12a + 10a = 88 \times 3$$

$$\Rightarrow 6a + 5a = 44 \times 3$$

$$\Rightarrow 11a = 44 \times 3$$

$$\Rightarrow a = 4 \times 3 = 12$$

$$b = \frac{2a}{3} = \frac{2 \times 12}{3} = 8$$

Total price of 25 apples and 40 oranges

$$= 25a + 40b = (25 \times 12) + (40 \times 8) = 300 + 320 = 620$$

2. The price of 24 apples is equal to that of 28 oranges. The price of 45 apples and 60 oranges together is Rs.1350. The total price of 30 apples and 40 oranges is

A. Rs.920

B. Rs.940

C. Rs.880

D. Rs.900

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Answer : Option D

Explanation :

Solution 1

Let the price of one apple = a and price of one orange = b

Price of 24 apples is equal to that of 28 oranges

$$24a = 28b$$

$$\Rightarrow 6a = 7b$$

$$\Rightarrow b = \frac{6a}{7} \text{ -----(Equation 1)}$$

price of 45 apples and 60 oranges together is Rs.1350

$$\Rightarrow 45a + 60b = 1350$$

$$\Rightarrow 3a + 4b = 90$$

$$\Rightarrow 3a + \frac{4(6a)}{7} = 90 \quad (\because \text{Substituted the value of } b \text{ from equation 1})$$

$$\Rightarrow a + \frac{4(2a)}{7} = 30$$

$$\Rightarrow 7a + 8a = 30 \times 7 = 210$$

$$\Rightarrow 15a = 210$$

$$\Rightarrow a = \frac{210}{15} = \frac{42}{3} = 14$$

$$b = \frac{6a}{7} = \frac{6 \times 14}{7} = 6 \times 2 = 12$$

Total price of 30 apples and 40 oranges

$$= 30a + 45b = (30 \times 14) + (40 \times 12) = 420 + 480 = 900$$

Solution 2

This can be done much easier.

Price of 45 apples and 60 oranges = Rs.1350

Price of 15 apples and 20 oranges = Rs.1350/3 = Rs.450 (\because Divided LHS and RHS by 15)

Price of 30 apples and 40 oranges = Rs.450 \times 2 = Rs.900 (\because Multiplied LHS and RHS by 2)

3. There are two buildings P and Q. If 15 persons are sent from P to Q, then the number of persons in each building is the same. If 20 persons are sent from Q to P, then the number of persons in P is double the number of persons in Q. How many persons are there in building P?

A. 80

B. 140

C. 120

D. 90

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Answer : Option C

Explanation :

Let the number of persons in building P = p
and the number of persons in building Q = q

If 15 persons are sent from P to Q,
then the number of persons in each building is the same

$$\Rightarrow p - 15 = q + 15$$

$$\Rightarrow p - q = 30 \text{ ----(Equation 1)}$$

If 20 persons are sent from Q to P,
then the number of persons in P is double the number of persons in Q
 $\Rightarrow 2(q - 20) = (p + 20)$
 $\Rightarrow 2q - 40 = p + 20$
 $\Rightarrow 2q - p = 60$ ----(Equation 2)

(Equation 1) + (Equation 2) $\Rightarrow q = 90$
From Equation 1, $p = 30 + q = 30 + 90 = 120$

i.e., Building P has 120 persons

4. The price of 3 tables and 4 chairs is Rs. 3300. With the same money one can buy 2 tables and 10 chairs. If one wants to buy 1 table and 1 chair, how much does he need to pay?

- A. Rs.940
B. Rs.1050
C. Rs.1040
D. Rs.950

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Answer : Option B

Explanation :

Let price of a table = t
and price of a chair = c

$$3t + 4c = 3300 \text{ ---(Equation 1)}$$

$$2t + 10c = 3300$$
$$\Rightarrow t + 5c = 1650 \text{ ---(Equation 2)}$$

$$(\text{Equation 2}) \times 3 \Rightarrow 3t + 15c = 4950 \text{ ---(Equation 3)}$$

$$(\text{Equation 3}) - (\text{Equation 1}) \Rightarrow 11c = 1650$$
$$\Rightarrow c = 150$$

Substituting the value of c in equation 1, we get

$$3t + (4 \times 150) = 3300$$
$$\Rightarrow 3t = 3300 - 600 = 2700$$
$$\Rightarrow t = 2700/3 = 900$$

$$\text{Cost of 1 table and 1 chair} = c + t = 150 + 900 = 1050$$

5. There are 6 working days in a regular week and for each day, the working hours are 10. A man earns Rs. 2.10 per hour for regular work and Rs. 4.20 per hour for overtime. If he earns Rs.525 in 4 weeks, how many hours did he work?

- A. 245
B. 285
C. 275
D. 255

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Answer : Option A

Explanation :

Regular working hours in 4 weeks = $(4 \times 6 \times 10) = 240$ hours

Amount earned by working in these regular working hours
= $240 \times 2.10 = \text{Rs.}504$

Additional amount he earned = $525 - 504 = \text{Rs.}21$

Hours he worked overtime = $21/4.2 = 210/42 = 5$ hours

Total hours he worked = $240 + 5 = 245$ hours

6. A man has some hens and cows. If the number of heads be 48 and the number of feet equals 140, then the number of hens will be

A. 22

B. 24

C. 26

D. 20

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Answer : Option C

Explanation :

Let number of hens = h and number of cows = c

number of heads = 48

$\Rightarrow h + c = 48$ ---(Equation 1)

number of feet = 140

$\Rightarrow 2h + 4c = 140$

$\Rightarrow h + 2c = 70$ ---(Equation 2)

(Equation 2) - (Equation 1) gives

$2c - c = 70 - 48$

$\Rightarrow c = 22$

Substituting the value of c in Equation 1, we get

$h + 22 = 48$

$\Rightarrow h = 48 - 22 = 26$

i.e., number of hens = 26

7. A sum of Rs.2200 has been divided among A, B and C such that A gets $\frac{1}{4}$ of what B gets and B gets $\frac{1}{5}$ of what C gets. What is B's share?

A. Rs.341

B. Rs.364

C. Rs.372

D. Rs.352

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Answer : Option D

Explanation :

Let C's share = Rs. x

Then B's share = $\frac{x}{5}$

A's share = $\frac{x}{5} \times \frac{1}{4} = \frac{x}{20}$

Hence, $x + \frac{x}{5} + \frac{x}{20} = 2200$

$\Rightarrow x(1 + \frac{1}{5} + \frac{1}{20}) = 2200$

$\Rightarrow x(\frac{25}{20}) = 2200$

$\Rightarrow x(\frac{5}{4}) = 2200$

$\Rightarrow x = \frac{2200 \times 4}{5} = 440 \times 4 = \text{Rs.}1760$

B's share = $\frac{x}{5} = \frac{1760}{5} = \text{Rs.}352$

8. A fires 5 shots to B's 3 but A kills only once in 3 shots while B kills once in 2 shots. When B has missed 27 times, A has killed:

A. 30 birds

B. 22 birds

C. 18 birds

D. 38 birds

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Answer : Option A

Explanation :

Let the total number of shots = x

$$\text{Shots fired by A} = \frac{5x}{8}$$

$$\text{Shots fired by B} = \frac{3x}{8}$$

$$\text{Killing shots by A} = \frac{5x}{8} \times \frac{1}{3} = \frac{5x}{24}$$

$$\text{Missing shots by B} = \frac{3x}{8} \times \frac{1}{2} = \frac{3x}{16}$$

$$\text{B has missed 27 times} \Rightarrow \frac{3x}{16} = 27$$

$$\Rightarrow x = \frac{27 \times 16}{3} = 144$$

$$\text{Hence, killing shots by A} = \frac{5x}{24} = \frac{5 \times 144}{24} = \frac{5 \times 12}{2} = 30$$

i.e., A has killed 30 birds

9. If $p - q = 6$ and $p^2 + q^2 = 116$, what is the value of pq ?

- A. 30 B. 40
C. 20 D. 50

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Answer : Option B

Explanation :

$$(a - b)^2 = a^2 - 2ab + b^2$$

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$$(p - q)^2 = p^2 - 2pq + q^2$$

$$(p - q)^2 = (p^2 + q^2) - 2pq$$

$$6^2 = 116 - 2pq$$

$$36 = 116 - 2pq$$

$$2pq = 80$$

$$pq = 40$$

10. To fill a tank, 25 buckets of water is required. How many buckets of water will be required to fill the same tank if the capacity of the bucket is reduced to two-fifth of its present?

A. 63

B. 64.5

C. 62.5

D. 60.5

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Answer : Option C

Explanation :

Solution 1 (Chain Rule)

Let x buckets of water be required ,if the capacity of the bucket is reduced to two-fifth

More buckets, less capacity (Indirect proportion)

Hence we can write as

$$\text{Capacity } \left. 1 : \frac{2}{5} \right\} :: x : 25$$

$$\Rightarrow 1 \times 25 = \frac{2}{5} \times x$$

$$\Rightarrow 25 = \frac{2x}{5}$$

$$\Rightarrow x = \frac{25 \times 5}{2} = 62.5$$

i.e., 62.5 buckets are needed

Solution 2

Let capacity of 1 bucket = x

Capacity of the tank = 25x

New capacity of the bucket = $\frac{2x}{5}$

$$\text{Hence, number of buckets needed} = \frac{25x}{\left(\frac{2x}{5}\right)} = \frac{25 \times 5}{2} = 62.5$$

Solution 3

Or more simply, you can assume as capacity of 1 bucket = 1

Then, capacity of the tank = 25

New capacity of the bucket = $\frac{2}{5}$

$$\text{Hence, number of buckets needed} = \frac{25}{\left(\frac{2}{5}\right)} = 62.5$$

11. John gets on the elevator at the 14th floor of a building and rides up at the rate of 84 floors per minute. At the same time, Vinod gets on an elevator at the 58th floor of the same building and rides down at the rate of 92 floors per minute. If they continue travelling at these rates, then at which floor will their paths cross?

- A. 38
B. 36
C. 32
D. 35

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Answer : Option D

Explanation :

Let their paths cross after x minutes

Then,

$$84x + 92x = 58 - 14$$

$$\Rightarrow 176x = 44$$

$$\Rightarrow x = \frac{44}{176} = \frac{1}{4}$$

$$\text{Number of floors covered by John in these } \frac{1}{4} \text{ minute} = 84 \times \frac{1}{4} = 21$$

Hence, their path cross at $14 + 21 = 35$, i.e., at 35th floor

12. A man has Rs. 312 in the denominations of one-rupee notes, five-rupee notes and twenty-rupee notes. The number of notes of each denomination is equal. What is the total number of notes that he has ?

- A. 36
B. 24
C. 28
D. 32

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Answer : Option A

Explanation :

Let the number of notes of each denomination be x

$$\text{Then, } x + 5x + 20x = 312$$

$$\Rightarrow 26x = 312$$

$$\Rightarrow x = 312/26 = 12$$

$$\text{the total number of notes that he has} = 3x = 3 \times 12 = 36$$

13. Free notebooks were distributed equally among children of a class. The number of notebooks each child got was one-eighth of the number of children. Had the number of children been half, each child would have got 16 notebooks. Total how many notebooks were distributed?

A. 602

B. 528

C. 423

D. 512

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Answer : Option D

Explanation :

Solution 1

Let number of children be n

If the number children = n , number of books each child will get = $n/8$

$$\text{total books distributed} = n \times \frac{n}{8} = \frac{n^2}{8}$$

If the number children = $n/2$, number of books each child will get = 16

$$\text{total books distributed} = \frac{n}{2} \times 16 = 8n$$

Since total books are same, we can write as $\frac{n^2}{8} = 8n$

$$\Rightarrow \frac{n}{8} = 8$$

$$\Rightarrow n = 64$$

$$\text{Total number of notebooks those were distributed} = \frac{n^2}{8} = \frac{64 \times 64}{8} = 64 \times 8 = 512$$

Solution 2 (Chain Rule)

Let n be the total number of children.

More children, less notebooks(Indirect proportion)

If the number children = n , number of books each child will get = $n/8$

If the number children = $n/2$, number of books each child will get = 16

Hence we can write as

$$\text{children } n : \frac{n}{2} \} :: 16 : \frac{n}{8}$$

$$\Rightarrow n \times \frac{n}{8} = \frac{n}{2} \times 16$$

$$\Rightarrow \frac{n}{8} = \frac{16}{2} = 8$$

$$\Rightarrow n = 8 \times 8 = 64$$

$$\text{Then, total number of notebooks those were distributed} = n \times \frac{n}{8} = \frac{64 \times 64}{8} = 64 \times 8 = 512$$

14. Eight people are planning to share equally the cost of a rental car. If one person withdraws from the arrangement and the others share equally the entire cost of the car, then the share of each of the remaining persons increased by:

A. $\frac{2}{5}$
C. $\frac{2}{7}$

B. $\frac{1}{8}$
D. $\frac{1}{7}$

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Here is the answer and explanation

Answer : Option D

Explanation :

Let x be the the cost of the rental car

When 8 persons share equally, share of one person = $\frac{x}{8}$

When 1 person withdraws and other 7 persons share equally, share of one person = $\frac{x}{7}$

Increase in the share = $\frac{x}{7} - \frac{x}{8} = \frac{x}{56}$

Required fraction = $\frac{\left(\frac{x}{56}\right)}{\left(\frac{x}{8}\right)} = \frac{1}{7}$

15. $\frac{(723 + 1992)^2 - (723 - 1992)^2}{723 \times 1992} = ?$

- A. 4 B. 33
C. 6 D. 1

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Here is the answer and explanation

Answer : Option A

Explanation :

$$(a + b)^2 = a^2 + 2ab + b^2$$

$$(a - b)^2 = a^2 - 2ab + b^2$$

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$$\frac{(723 + 1992)^2 - (723 - 1992)^2}{723 \times 1992}$$

$$= \frac{(a + b)^2 - (a - b)^2}{ab} \quad (\text{where } a = 723 \text{ and } b = 1992)$$

$$= \frac{a^2 + 2ab + b^2 - (a^2 - 2ab + b^2)}{ab}$$

$$= \frac{4ab}{4} = 4$$

16. One-third of Rahul's savings in National Savings Certificate is equal to one-half of his savings in Public Provident Fund. If he has Rs. 1,80,000 as total savings, how much has he saved in Public Provident Fund?

A. Rs. 72000

B. Rs. 44000

C. Rs. 58000

D. Rs. 92000

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[Here is the answer and explanation](#)

Answer : Option A

Explanation :

Let savings in National Savings Certificate = x

and savings in Public Provident Fund = (180000 - x)

$$\frac{1}{3}x = \frac{1}{2}(180000 - x)$$

$$\Rightarrow 2x = 3(180000 - x)$$

$$\Rightarrow 2x = 540000 - 3x$$

$$\Rightarrow 5x = 540000$$

$$\Rightarrow x = \frac{540000}{5} = 108000$$

Savings in Public Provident Fund = (180000 - 108000) = 72000

17. $8 / 4 / 2 = ?$

A. 4

B. 1

C. 0 D. 2

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Here is the answer and explanation

Answer : Option B

Explanation :

$$8 / 4 / 2 = (8 / 4) / 2 = 2/2 = 1$$

18. $20 + 20 \times 2 = ?$

- A. 40 B. 50
C. 60 D. 70

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Here is the answer and explanation

Answer : Option C

Explanation :

$$20 + 20 \times 2 = 20 + 40 = 60$$

19. $25 / 5 \times 5 = ?$

- A. 25 B. 15
C. 20 D. 30

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Here is the answer and explanation

Answer : Option A

Explanation :

$$25 / 5 \times 5 = 5 \times 5 = 25$$

20. $5 \times 5 / 5 = ?$

- A. 5 B. 1
C. 10 D. 25

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Here is the answer and explanation

Answer : Option A

Explanation :

$$5 \times 5 / 5 = 25 / 5 = 5$$

21. $b - [b -(a+b) - \{b - (b - a+b)\} + 2a] = ?$

- A. 0 B. 4a
C. a D. -2a

Here is the answer and explanation

Answer : Option A

Explanation :

$$\begin{aligned} & b - [b - (a+b) - \{b - (b - a+b)\} + 2a] \\ &= b - [b - a - b - \{b - b + a - b\} + 2a] \\ &= b - [b - a - b - \{a - b\} + 2a] \\ &= b - [b - a - b - a + b + 2a] \\ &= b - [b] \\ &= b - b \\ &= 0 \end{aligned}$$

22. $2\frac{1}{3} + 3\frac{1}{2} + 4\frac{1}{4} = ?$

A. $10\frac{1}{12}$ B. $10\frac{1}{6}$

C. $10\frac{1}{4}$ D. $10\frac{1}{2}$

Here is the answer and explanation

Answer : Option A

Explanation :

$$\begin{aligned} & 2\frac{1}{3} + 3\frac{1}{2} + 4\frac{1}{4} \\ &= \frac{7}{3} + \frac{7}{2} + \frac{17}{4} \\ &= \frac{(28 + 42 + 51)}{12} \\ &= \frac{121}{12} \\ &= 10\frac{1}{12} \end{aligned}$$

23. If $a * b = 2a - 4b + 2ab$, then $2*3 + 3*2 = ?$

A. 2 B. 0

C. 14 D. 12

[Here is the answer and explanation](#)

Answer : Option C

Explanation :

$$a * b = 2a - 4b + 2ab$$

Hence,

$$2*3 = 2(2) - 4(3) + 2(2 \times 3) = 4 - 12 + 12 = 4$$

$$3*2 = 2(3) - 4(2) + 2(3 \times 2) = 6 - 8 + 12 = 10$$

$$\therefore 2*3 + 3*2 = 4 + 10 = 14$$

$$24. \frac{1}{4 + \frac{1}{4 + \frac{1}{4 + \frac{1}{4}}}} = ?$$

- A. $\frac{24}{305}$ B. $\frac{1}{64}$
C. $\frac{72}{305}$ D. $\frac{81}{320}$

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[Here is the answer and explanation](#)

Answer : Option C

Explanation :

$$\frac{1}{4 + \frac{1}{4 + \frac{1}{4 + \frac{1}{4}}}} = \frac{1}{4 + \frac{1}{4 + \frac{1}{\left(\frac{17}{4}\right)}}} = \frac{1}{4 + \frac{1}{4 + \frac{4}{17}}} = \frac{1}{4 + \frac{1}{\left(\frac{72}{17}\right)}} = \frac{1}{4 + \frac{17}{72}} = \frac{1}{\left(\frac{305}{72}\right)} = \frac{72}{305}$$

25. If the number of boys in a class are 8 times the number of girls, which value can never be the total number of students?

- A. 27 B. 45
C. 81 D. 42

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[Here is the answer and explanation](#)

Answer : Option D

Explanation :

Let the number of girls = x and the number of boys = 8x

Then, total number of students = x + 8x = 9x

i.e., the total number of students must be a multiple of 9

From the given choices, 42 cannot be a multiple of 9.

Hence, 42 cannot be the total number of students.

26. What fraction of $\frac{3}{5}$ needs to be added to itself to become $2\frac{1}{4}$

A. $\frac{5}{4}$

B. $2\frac{3}{4}$

C. $2\frac{1}{4}$

D. $\frac{3}{4}$

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Answer : Option B

Explanation :

Let x be the required fraction

$$\frac{3}{5}x + \frac{3}{5} = 2\frac{1}{4}$$

$$\frac{3}{5}x + \frac{3}{5} = \frac{9}{4}$$

$$\Rightarrow \frac{3}{5}x = \frac{9}{4} - \frac{3}{5} = \frac{(45 - 12)}{20} = \frac{33}{20}$$

$$\Rightarrow x = \frac{33}{20} \times \frac{5}{3} = \frac{11}{4} = 2\frac{3}{4}$$

27. An organization decided to raise Rs. 6 lakh by collecting equal contribution from each of its employees. If each of them had contributed Rs. 60 extra, the contribution would have been Rs. 6.24 lakh. How many employees are there in that organization?

A. 400

B. 300

C. 200

D. 100

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[Here is the answer and explanation](#)

Answer : Option A

Explanation :

$$\text{Required number of employees} = \frac{(624000 - 600000)}{60} = \frac{24000}{60} = 400$$

28. In a group of ducks and cows, the total number of legs are 28 more than twice the number of heads. Find the total number of cows.

A. 14

B. 12

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Here is the answer and explanation

Answer : Option A

Explanation :

Let the number of ducks be d
and number of cows be c

Then, total number of legs = $2d + 4c = 2(d + 2c)$

total number of heads = $c + d$

Given that total number of legs are 28 more than twice the number of heads

$$\Rightarrow 2(d + 2c) = 28 + 2(c + d)$$

$$\Rightarrow d + 2c = 14 + c + d$$

$$\Rightarrow 2c = 14 + c$$

$$\Rightarrow c = 14$$

i.e., total number of cows = 14

29. If $a - b = 6$ and $a^2 + b^2 = 116$, then what is the value of ab ?

A. 20

B. 40

C. 60

D. 80

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Here is the answer and explanation

Answer : Option B

Explanation :

$$(a - b)^2 = a^2 - 2ab + b^2$$

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$$\Rightarrow (a - b)^2 = a^2 - 2ab + b^2$$

$$\Rightarrow 6^2 = 116 - 2ab$$

$$\Rightarrow 36 = 116 - 2ab$$

$$\Rightarrow 2ab = 116 - 36 = 80$$

$$\Rightarrow ab = 40$$

30. A room has equal number of men and women. Eight women left the room, leaving twice as many men as women in the room. What was the total number of men and women present in the room initially?

A. 32

B. 34

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Here is the answer and explanation

Answer : Option A

Explanation :

Assume that initial number of men = initial number of women = x

$$2(x-8) = x$$

$$\Rightarrow 2x - 16 = x$$

$$\Rightarrow x = 16$$

Total number of men and women = $2x = 2 \times 16 = 32$

31. From a group of boys and girls, 15 girls leave. They are then left 2 boys for each girl. After this, 45 boys leave. There are then 5 girls for each boy. Find the number of girls in the beginning

A. 40

B. 20

C. 32

D. 60

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[Here is the answer and explanation](#)

Answer : Option A

Explanation :

Solution 1

Assume that initial number of boys = b

initial number of girls = g

15 girls leave and they are then left 2 boys for each girl

$$\Rightarrow 2(g - 15) = b$$

$$\Rightarrow 2g - b = 30 \text{ ---(Equation 1)}$$

After this, 45 boys leave. There are then 5 girls for each boy

$$5(b - 45) = (g - 15)$$

$$5b - g = 210 \text{ ---(Equation 2)}$$

$$\text{(Equation 2)} \times 2$$

$$\Rightarrow 10b - 2g = 420 \text{ ---(Equation 3)}$$

$$\text{(Equation 1)} + \text{(Equation 3)}$$

$$\Rightarrow 9b = 450$$

$$\Rightarrow b = 450/9 = 50$$

Substituting this value of b in Equation 1, we get

$$2g - 50 = 30$$

$$\Rightarrow 2g = 80$$

$$\Rightarrow g = 40$$

i.e., number of girls in the beginning = 40

Solution 2

Assume the number of boys at present = x

Then, the number of girls at present = 5x

Before the boys left, the number of boys were (x+45) and number of girls were 5x

$$\text{Hence, } 2(5x) = x + 45$$

$$\Rightarrow 10x = x + 45$$

$$\Rightarrow x = 5$$

$$\text{Number of girls in the beginning} = (5x + 15) = (5 \times 5 + 15) = 40$$

32. How many pieces of 85 cm length can be cut from a rod of 42.5 meters long?

A. 15

B. 20

C. 2

D. 50

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Here is the answer and explanation

Answer : Option D

Explanation :

$$\text{Number of pieces} = \frac{4250}{85} = \frac{850}{17} = 50$$

33. In a garden, there are 10 rows and 12 columns of mango trees. The distance between the two trees is 2 metres and a distance of one metre is left from all sides of the boundary of the garden. What is the length of the garden?

A. 30 m

B. 28 m

C. 26 m

D. 24 m

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Here is the answer and explanation

Answer : Option D

Explanation :

Between the 12 mango trees, there are 11 gaps and each gap has 2 meter length

Also, 1 meter is left from all sides of the boundary of the garden.

Hence, length of the garden = $(11 \times 2) + 1 + 1 = 24$ meter

34. In a garden, 26 trees are planted at equal distances along a yard 300 metres long, one tree being at each end of the yard. What is the distance between two consecutive trees?

A. 10

B. 20

C. 14

D. 12

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Here is the answer and explanation

Answer : Option D

Explanation :

26 trees have 25 gaps between them.

Length of each gap = $300/25 = 12$

i.e., distance between two consecutive trees = 12

35. A boy was asked to multiply a number by 22. He instead multiplied the number by 44 and got the answer 308 more than the correct answer. What was the number to be multiplied?

A. 16

B. 10

C. 14

D. 12

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Here is the answer and explanation

Answer : Option C

Explanation :

Let the number be x

$$22x + 308 = 44x$$

$$\Rightarrow 44x - 22x = 308$$

$$\Rightarrow 22x = 308$$

$$\Rightarrow x = 308/22 = 154/11 = 14$$

36. In an examination, a student scores 4 marks for every correct answer and loses 1 mark for every wrong answer. If he attempts all 80 questions and secures 120 marks, How many questions does he answer correctly?

A. 30

B. 60

C. 50

D. 40

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Here is the answer and explanation

Answer : Option D

Explanation :

Let the number of correct answers be x

Then, number of wrong answers = (80 - x)

$$4x - (80 - x) = 120$$

$$\Rightarrow 4x - 80 + x = 120$$

$$\Rightarrow 5x = 200$$

$$\Rightarrow x = 200/5 = 40$$

i.e., he does 40 questions correctly