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(1) 10 women can complete a work in 7 days and 10 children take 14 days to complete the work. How many days will 5 women and 10 children take to complete the work?

- [A] 3  
 [B] 5  
 [C] 7  
 [D] Cannot be determined  
 [E] None of these

**Answer : [C]**

**Explanation:**

$$1 \text{ woman's 1 day's work} = \frac{1}{70}$$

$$1 \text{ child's 1 day's work} = \frac{1}{140}$$

$$(5 \text{ women} + 10 \text{ children})'s \text{ day's work} = \left( \frac{5}{70} + \frac{10}{140} \right) = \left( \frac{1}{14} + \frac{1}{14} \right) = \frac{1}{7}$$

∴ 5 women and 10 children will complete the work in 7 days.

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(2) 4 men and 6 women can complete a work in 8 days, while 3 men and 7 women can complete it in 10 days. In how many days will 10 women complete it?

- [A] 35  
 [B] 40  
 [C] 45  
 [D] 50

**Answer : [B]**

**Explanation:**

Let 1 man's 1 day's work =  $x$  and 1 woman's 1 day's work =  $y$ .

$$\text{Then, } 4x + 6y = \frac{1}{8} \text{ and } 3x + 7y = \frac{1}{10}$$

$$\text{Solving the two equations, we get: } x = \frac{11}{400}, y = \frac{1}{400}$$

$$\therefore 1 \text{ woman's 1 day's work} = \frac{1}{400}$$

$$\Rightarrow 10 \text{ women's 1 day's work} = \left( \frac{1}{400} \times 10 \right) = \frac{1}{40}$$

Hence, 10 women will complete the work in 40 days.

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(3) A and B can complete a work in 15 days and 10 days respectively. They started doing the work together but after 2 days B had to leave and A alone completed the remaining work. The whole work was completed in :

- [A] 8 days

[B] 10 days

[C] 12 days

[D] 15 days

**Answer : [C]**

**Explanation:**

$$(A + B)\text{'s 1 day's work} = \left(\frac{1}{15} + \frac{1}{10}\right) = \frac{1}{6}.$$

$$\text{Work done by A and B in 2 days} = \left(\frac{1}{6} \times 2\right) = \frac{1}{3}.$$

$$\text{Remaining work} = \left(1 - \frac{1}{3}\right) = \frac{2}{3}.$$

Now,  $\frac{1}{15}$  work is done by A in 1 day.

$$\therefore \frac{2}{3} \text{ work will be done by a in } \left(15 \times \frac{2}{3}\right) = 10 \text{ days.}$$

Hence, the total time taken =  $(10 + 2) = 12$  days.

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**(4) A and B together can do a piece of work in 30 days. A having worked for 16 days, B finishes the remaining work alone in 44 days. In how many days shall B finish the whole work alone?**

[A] 30 days

[B] 40 days

[C] 60 days

[D] 70 days

**Answer : [C]**

**Explanation:**

Let A's 1 day's work =  $x$  and B's 1 day's work =  $y$ .

$$\text{Then, } x + y = \frac{1}{30} \text{ and } 16x + 44y = 1.$$

$$\text{Solving these two equations, we get: } x = \frac{1}{60} \text{ and } y = \frac{1}{60}$$

$$\therefore \text{B's 1 day's work} = \frac{1}{60}.$$

Hence, B alone shall finish the whole work in 60 days.

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**(5) A and B can do a work in 8 days, B and C can do the same work in 12 days. A, B and C together can finish it in 6 days. A and C together will do it in :**

[A] 4 days

[B] 6 days

[C] 8 days

[D] 12 days

**Answer : [C]**

**Explanation:**

$$(A + B + C)\text{'s 1 day's work} = \frac{1}{6};$$

$$(A + B)\text{'s 1 day's work} = \frac{1}{8};$$

$$(B + C)\text{'s 1 day's work} = \frac{1}{12}.$$

$$\begin{aligned}\therefore (A + C)\text{'s 1 day's work} &= \left(2 \times \frac{1}{6}\right) - \left(\frac{1}{8} + \frac{1}{12}\right) \\ &= \left(\frac{1}{3} - \frac{5}{24}\right) \\ &= \frac{3}{24} \\ &= \frac{1}{8}.\end{aligned}$$

So, A and C together will do the work in 8 days.

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**(6) Two numbers A and B are such that the sum of 5% of A and 4% of B is two-third of the sum of 6% of A and 8% of B. Find the ratio of A : B.**

[A] 2 : 3

[B] 1 : 1

[C] 3 : 4

[D] 4 : 3

**Answer : [D]**

**Explanation:**

$$5\% \text{ of } A + 4\% \text{ of } B = \frac{2}{3} (6\% \text{ of } A + 8\% \text{ of } B)$$

$$\Rightarrow \frac{5}{100}A + \frac{4}{100}B = \frac{2}{3} \left( \frac{6}{100}A + \frac{8}{100}B \right)$$

$$\Rightarrow \frac{1}{20}A + \frac{1}{25}B = \frac{1}{25}A + \frac{4}{75}B$$

$$\Rightarrow \left( \frac{1}{20} - \frac{1}{25} \right) A = \left( \frac{4}{75} - \frac{1}{25} \right) B$$

$$\Rightarrow \frac{1}{100}A = \frac{1}{75}B$$

$$\frac{A}{B} = \frac{100}{75} = \frac{4}{3}.$$

$\therefore$  Required ratio = 4 : 3

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**(7) In an election between two candidates, one got 55% of the total valid votes, 20% of the votes were invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got, was:**

[A] 2700

[B] 2900

[C] 3000

[D] 3100

**Answer : [A]**

**Explanation:**

Number of valid votes = 80% of 7500 = 6000.

∴ Valid votes polled by other candidate = 45% of 6000

$$= \left( \frac{45}{100} \times 6000 \right) = 2700.$$

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**(8)**

A student multiplied a number by  $\frac{3}{5}$  instead of  $\frac{5}{3}$ .

**What is the percentage error in the calculation?**

[A] 34%

[B] 44%

[C] 54%

[D] 64%

**Answer : [D]**

**Explanation:**

Let the number be  $x$ .

$$\text{Then, error} = \frac{5}{3}x - \frac{3}{5}x = \frac{16}{15}x.$$

$$\text{Error\%} = \left( \frac{16x}{15} \times \frac{3}{5x} \times 100 \right) \% = 64\%.$$

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**(9) Three candidates contested an election and received 1136, 7636 and 11628 votes respectively. What percentage of the total votes did the winning candidate get?**

[A] 57%

[B] 60%

[C] 65%

[D] 90%

**Answer : [A]**

**Explanation:**

Total number of votes polled = (1136 + 7636 + 11628) = 20400.

$$\therefore \text{Required percentage} = \left( \frac{11628}{20400} \times 100 \right) \% = 57\%.$$

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**(10) Two tailors X and Y are paid a total of Rs. 550 per week by their employer. If X is paid 120 percent of the sum paid to Y, how much is Y paid per week?**

[A] Rs. 200

[B] Rs. 250

[C] Rs. 300

[D] None of these

**Answer : [B]**

**Explanation:**

Let the sum paid to Y per week be Rs.  $z$ .

Then,  $z + 120\%$  of  $z = 550$ .

$$\Rightarrow z + \frac{120}{100}z = 550$$

$$\Rightarrow \frac{11}{5}z = 550$$

$$\Rightarrow z = \left( \frac{550 \times 5}{11} \right) = 250.$$

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**(11) A sum of money is to be distributed among A, B, C, D in the proportion of 5 : 2 : 4 : 3. If C gets Rs. 1000 more than D, what is B's share?**

[A] Rs. 500

[B] Rs. 1500

[C] Rs. 2000

[D] None of these

**Answer : [C]**

**Explanation:**

Let the shares of A, B, C and D be Rs.  $5x$ , Rs.  $2x$ , Rs.  $4x$  and Rs.  $3x$  respectively.

Then,  $4x - 3x = 1000$

$\Rightarrow x = 1000$ .

$\therefore$  B's share = Rs.  $2x = \text{Rs. } (2 \times 1000) = \text{Rs. } 2000$ .

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**(12) Salaries of Ravi and Sumit are in the ratio 2 : 3. If the salary of each is increased by Rs. 4000, the new ratio becomes 40 : 57. What is Sumit's salary?**

[A] Rs. 17,000

[B] Rs. 20,000

[C] Rs. 25,500

[D] Rs. 38,000

**Answer : [D]**

**Explanation:**

Let the original salaries of Ravi and Sumit be Rs.  $2x$  and Rs.  $3x$  respectively.

Then,  $\frac{2x + 4000}{3x + 4000} = \frac{40}{57}$

$$\Rightarrow 57(2x + 4000) = 40(3x + 4000)$$

$$\Rightarrow 6x = 68,000$$

$$\Rightarrow 3x = 34,000$$

Sumit's present salary =  $(3x + 4000) = \text{Rs. } (34000 + 4000) = \text{Rs. } 38,000$ .

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**(13) In a bag, there are coins of 25 p, 10 p and 5 p in the ratio of 1 : 2 : 3. If there is Rs. 30 in all, how many 5 p coins are there?**

[A] 50

[B] 100

[C] 150

[D] 200

**Answer : [C]**

**Explanation:**

Let the number of 25 p, 10 p and 5 p coins be  $x$ ,  $2x$ ,  $3x$  respectively.

Then, sum of their values = Rs.  $\left(\frac{25x}{100} + \frac{10 \times 2x}{100} + \frac{5 \times 3x}{100}\right) = \text{Rs. } \frac{60x}{100}$

$$\therefore \frac{60x}{100} = 30 \Leftrightarrow x = \frac{30 \times 100}{60} = 50.$$

Hence, the number of 5 p coins =  $(3 \times 50) = 150$ .

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**(14) The salaries A, B, C are in the ratio 2 : 3 : 5. If the increments of 15%, 10% and 20% are allowed respectively in their salaries, then what will be new ratio of their salaries?**

[A] 3 : 3 : 10

[B] 10 : 11 : 20

[C] 23 : 33 : 60

[D] Cannot be determined

**Answer : [C]**

**Explanation:**

Let  $A = 2k$ ,  $B = 3k$  and  $C = 5k$ .

$$\text{A's new salary} = \frac{115}{100} \text{ of } 2k = \left(\frac{115}{100} \times 2k\right) = \frac{23k}{10}$$

$$\text{B's new salary} = \frac{110}{100} \text{ of } 3k = \left(\frac{110}{100} \times 3k\right) = \frac{33k}{10}$$

$$\text{C's new salary} = \frac{120}{100} \text{ of } 5k = \left(\frac{120}{100} \times 5k\right) = 6k$$

$$\therefore \text{New ratio} \left(\frac{23k}{10} : \frac{33k}{10} : 6k\right) = 23 : 33 : 60$$

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**(15) The fourth proportional to 5, 8, 15 is:**

[A] 18

[B] 24

[C] 19

[D] 20

**Answer : [B]**

**Explanation:**

Let the fourth proportional to 5, 8, 15 be  $x$ .

Then,  $5 : 8 : 15 : x$

$$\Rightarrow 5x = (8 \times 15)$$

$$x = \frac{(8 \times 15)}{5} = 24.$$

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**(16)**

If  $\frac{144}{0.144} = \frac{14.4}{x}$ , then the value of  $x$  is:

[A] 0.0144

[B] 1.44

[C] 14.4

[D] 144

**Answer : [A]**

**Explanation:**

$$\frac{144}{0.144} = \frac{14.4}{x}$$

$$\Rightarrow \frac{144 \times 1000}{144} = \frac{14.4}{x}$$

$$\Rightarrow x = \frac{14.4}{1000} = 0.0144$$

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**(17)  $617 + 6.017 + 0.617 + 6.0017 = ?$**

[A] 6.2963

[B] 62.965

[C] 629.6357

[D] None of these

**Answer : [C]**

**Explanation:**

$$617.00 \quad 6.017 \quad 0.617 \quad + \quad 6.0017 \quad \text{-----} \quad 629.6357 \quad \text{-----}$$

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**(18) Which of the following is equal to  $3.14 \times 10^6$  ?**

[A] 314

[B] 3140

[C] 3140000

[D] None of these

**Answer : [C]**

**Explanation:**

$$3.14 \times 10^6 = 3.14 \times 1000000 = 3140000.$$

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**(19)**

$$\frac{5 \times 1.6 - 2 \times 1.4}{1.3} = ?$$

[A] 0.4

[B] 1.2

[C] 1.4

[D] 4



**Answer : [D]**

**Explanation:**

$$\text{Given Expression} = \frac{8 - 2.8}{1.3} = \frac{5.2}{1.3} = \frac{52}{13} = 4.$$

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**(20)  $3.\overline{87} - 2.\overline{59} = ?$**

[A] 1.20

[B]  $1.\overline{2}$

[C]  $1.\overline{27}$

[D]  $1.\overline{28}$

**Answer : [D]**

**Explanation:**

$$\begin{aligned} 3.\overline{87} - 2.\overline{59} &= (3 + 0.\overline{87}) - (2 + 0.\overline{59}) \\ &= \left(3 + \frac{87}{99}\right) - \left(2 + \frac{59}{99}\right) \\ &= 1 + \left(\frac{87}{99} - \frac{59}{99}\right) \\ &= 1 + \frac{28}{99} \\ &= 1.\overline{28}. \end{aligned}$$

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