Mixed Maths Questions for SBI PO Pre, IBPS PO Pre, IBPS Clerk Mains, SBI Clerk Mains and LIC AAO Pre Exams.

Bank PO Maths Quiz 31

Direction: Study the following questions carefully and choose the right answer.

1. Pritam deposited Rs. 'x' in bank A at 30% compound interest and Rs. 'x + 600' in bank B at 36% simple interest for 3 years. If interest earned by him from bank A was Rs. 1107 more than interest earned by him from bank B, then find the value of 'x'.

A. 16000 B. 12000 C. 15000 D. 20000 E. 18000

2. The ratio of present age of Ankur to present age of Sanjeev is 3 : 11 while the ratio of present age of Sanjeev to present age of Reena is 5 : 4. If the average age after 7 years of all three will become 45 years , then find the present age of Reena.

A. 40 years B. 28 years C. 24 years D. 44 years E. 48 years

3. A shopkeeper bought an article for Rs. 2400. The shopkeeper earned profit of 20% if profit is calculated on the selling price. If the marked price of the article was Rs. 'x' more than the cost price of the article and the discount given was 25%, then find the value of 'x'.

A. 1200 B. 1500 C. 1800 D. 1600 E. 2000

4. Deepak and Sanjay together started a business with investments of Rs. 16400 and Rs. 18200, respectively. After a year, Deepak increased his investment by 15% while Sanjay decreased his investment by 5%. If the profit at the end of two years was Rs. 84900, then find the share of Deepak?

A. Rs. 42840 B. Rs. 42312 C. Rs. 42236 D. Rs. 42752 E. Rs. 42560

5. A bag contains 6 red, 4 black and 3 yellow balls. Salim picks 2 balls at random from the bag. What will be the probability that both balls are of same colour?

A. $\frac{9}{13}$ B. $\frac{8}{17}$ C. $\frac{7}{12}$ D. $\frac{5}{9}$ E. $\frac{4}{13}$

6. The ratio of curved surface area of a cone and a cylinder is 13 : 10. Total surface area of the cylinder is 750 cm^2 and radius of the cone is 10 cm. If radius of cone is 2 times that of cylinder then find the volume of cone.(take $\pi = 3$)

A. 2800 cm^3 B. 2480 cm^3 C. 2400 cm^3 D. 2700 cm^3 E. 2620 cm^3

7. Sampark Kranti express leaves Station A at 8 : 00 PM and 2 hours later another train Shatabdi express leaves Station A. Both the trains reach Station B at 1 : 00 AM. After reaching Station B, both trains off to Station C and Shatabdi express takes 96 minutes less than Sampark Kranti express to reach Station C. If distance between Station C to Station B is 300 km then find the difference between speed of both trains?

A. 40 km/h B. 50 km/h C. 60 km/h D. 30 km/h E. 80 km/h

8. An 8 member jury is to be selected from a group of 9 male and 7 females. In how many ways will the jury having at most 3 females and at least 4 males be selected?

A. 6435 ways B. 6298 ways C. 6670 ways D. 7240 ways E. 6875 ways

9. Arvind alone can do a piece of work in 'x' days, while Bablu can do the same work in 'y' days. Bablu and Chandan together can complete the whole work in 8 days and Arvind and Bablu together complete the work in 4.8 days. If Chandan is 50% efficient than that of Bablu, then find the value of 'x'.

A. 16 B. 20 C. 8 D. 10 E. 15

10. The sum of the present age of A and B is 55 years and that of C and D is 80 years. Five years ago, the ratio of A's age to C's age was 5: 8. Five years hence B's age becomes equal to that of A's present age. Two years hence, what will be the sum of the age of A, B, C and D?

A. 142 years B. 143 years C. 156 years D. 138 years E. None of these

Correct Answers:

1	2	3	4	5	6	7	8	9	10
C	D	D	B	E	C	B	A	C	B

Explanations:

1. Interest earned by him from bank A = $x \times \{(1.3)^3 - 1\}$ = Rs. 1.197x

Interest earned by him from bank B = $\frac{\{(x + 600) \times 36 \times 3\}}{100}$ = Rs. 1.08x + 648

So 1.197x – 1.08x – 648 = 1107

0.117x = 1755
x = 15000
Hence, option C is correct.

2. Let age of Ankur and Sanjeev be 3x years and 11x years, respectively.

So age of Reena = $\frac{4}{5} \times 11x = \frac{44x}{5}$ years

So, $\frac{3x + 11x + 44x/5}{3} = 45 - 7$

$\Rightarrow 15x + 55x + 44x = 15 \times 38$

$\Rightarrow 114x = 570$

$\Rightarrow x = 5$

Age of Reena = $\frac{44x}{5} = 44$ years

Hence, option D is correct.

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3. Let, selling price = Rs. 'y'

So profit = 20% of y = Rs. 0.2y

So 2400 + 0.2y = y

$y = \frac{2400}{0.8} = 3000$

75% of marked price = 3000

Marked price = $\frac{3000 \times 100}{0.75}$ = Rs. 4000

So value of x = 4000 – 2400 = 1600

Hence, option D is correct.

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4. Total investment of Deepak = Rs. (16400 + 115% of 16400) = Rs. (16400 + 18860) = Rs. 35260

Total investment of Sanjay = Rs. (18200 + 95% of 18200) = Rs. (18200 + 17290) = Rs. 35490

Ratio of profit share of Deepak and Sanjay = 35260 : 35490 = 3526 : 3549

Profit share of Deepak = $\frac{3526}{7075} \times 84900$ = Rs. 42312

Hence, option B is correct.

5. Probability that both the balls are of different colours

$$= \frac{({}^{6}C_1 \times {}^{4}C_1) + ({}^{4}C_1 \times {}^{3}C_1) + ({}^{6}C_1 \times {}^{3}C_1)}{{}^{13}C_2}$$

$$= \frac{24 + 12 + 18}{78} = \frac{54}{78} = \frac{9}{13}$$

Probability that both the balls are of same colour = $1 - \frac{9}{13} = \frac{13 - 9}{13} = \frac{4}{13}$

Hence, option E is correct.

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6. Let height of cylinder be h cm

Radius of cylinder = 5 cm [As radius of cone is 10cm which is twice of cylinder]

So $2 \times 3 \times 5 \times (5 + h) = 750$

$\Rightarrow 5 + h = 750/30$

$\Rightarrow h = 20$ cm

Also, $\frac{\pi \times 10 \times l}{2\pi \times 5 \times h} = \frac{13}{10}$

$\Rightarrow \frac{l}{h} = \frac{13}{10}$

$\Rightarrow l = \frac{13h}{10}$

$\Rightarrow l = 26$ cm

Height of cone = $\sqrt{(26^2 - 10^2)} = 24$ cm

Volume of cone = $\frac{1}{3} \times 3 \times 10 \times 10 \times 24 = 2400$ cm^3

Hence, option C is correct.

7. Let speed of Sampark Kranti express be x km/h
And, speed of Shatabdi express be y km/h

So, $x \times 5 = y \times 3$

$\Rightarrow \frac{x}{y} = \frac{3}{5}$

$\Rightarrow y = \frac{5x}{3}$

And, $\frac{300}{x} - \frac{300}{y} = \frac{8}{5}$

$\Rightarrow 300y - 300x = \frac{8xy}{5}$

$\Rightarrow 300 \times \frac{5x}{3} - 300x = \frac{8x}{5} \times \frac{5x}{3}$

$\Rightarrow 1500x - 900x = 8x^2$

$\Rightarrow 600 = 8x$

$\Rightarrow x = 75$ km/h

$y = \frac{5x}{3} = 125$ km/h

Required difference = 125 – 75 = 50 km/h

Hence, option B is correct.

8. **Case I :** 5 males and 3 females in the Jury.

Number of ways of selection = ${}^9C_5 \times {}^7C_3 = 126 \times 35 = 4410$

Case II : 6 males and 2 females in the Jury

Number of ways of selection = ${}^9C_6 \times {}^7C_2 = 84 \times 21 = 1764$

Case III : 7 males and 1 female in the Jury

Number of ways of selection = ${}^9C_7 \times {}^7C_1 = 36 \times 7 = 252$

Case IV : 8 males in the Jury

Number of ways of selection = ${}^9C_8 = 9$

So total number of ways of selecting the 8 member jury = 4410 + 1764 + 252 + 9 = 6435 ways
Hence, option A is correct.

9. Time taken by Arvind alone to complete the work = x days

Time taken by Bablu alone to complete the work = y days

Since, Chandan is 50% efficient than that of Bablu.

So, time taken by Chandan alone to complete the work = 2y days

Since, Bablu and Chandan together can complete the work in 8 days.

$$\text{So, } \frac{1}{\frac{1}{y}+\frac{1}{2y}} = 8$$

$$\Rightarrow \frac{1}{\frac{2+1}{2y}} = 8$$

$$\Rightarrow \frac{2y}{3} = 8$$

$$\Rightarrow y = 12$$

And, Arvind and Bablu together can complete the work in 4.8 days.

$$\text{So, } \frac{1}{\frac{1}{x}+\frac{1}{12}} = 4.8$$

$$\Rightarrow \frac{12x}{12+x} = 4.8$$

$$\Rightarrow 12x = 57.6 + 4.8x$$

$$\Rightarrow 7.2x = 57.6$$

$$\Rightarrow x = 8$$

Hence, option C is correct.

10. **Intuitive method:**

The sum of the present age of A and B is 55 years and that of C and D is 80 years.

So the sum of present age of all of them is (55 + 80) years = 135 years

Two years hence the sum of all will be (135 + 8) years = 143 years

Hence, option B is correct

Traditional Method:

Let at present, A's age = A years, B's age = B years, C's age = C years, D's age = D years

Then, according to the question

A + B = 55 ------ (i)

C + D = 80 ------ (ii)

5 years ago, A's age = A – 5 years and C's age = C – 5 years

According to the question,

(A – 5) : (C – 5) = 5: 8

8A – 40 = 5C – 25

8A – 5C = 15 ------- (iii)

Five years hence, B's age becomes equal to that of A's present age

B + 5 = A

A – B = 5 ------ (iv)

Solve equation (i) and (iv)

A = 30 years and B = 25 years

Put the value of A in the equation (iii)

240 – 15 = 5C

$C = \frac{225}{5}$ = 45 years

Put the value of C in the equation (ii)

D = 80 – 45 = 35 years

Two years hence,

A's age = A + 2 = 30 + 2 = 32 years, B's age = B + 2 = 25 + 2 = 27 years, C's age = C + 2 = 45 + 2 = 47 years, D's age = D + 2 = 35 + 2 = 37 years

the sum of the age of A, B, C and D = 32 + 27 + 47 + 37 = 143 years

Hence, option B is correct.