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

## Bank PO Maths Quiz 17

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

1. A social group named BACHPAN offers fruit to the orphans. Every orphan receives orange, Litchi and apple in the ratio 6 : 4 : 14 in terms of dozen but the weight of one Apple is 640 grams and weight of orange and Litchi is in the ratio of 2 : 6. The weight of one Orange is 160 grams. Find the ratio of the percentage contribution of all the fruits in terms of weight?

- A. 8.1 : 16.2 : 75.7    B. 9.3 : 18.6 : 76.7    C. 10 : 41 : 45    D. 13 : 58 : 20    E. None of these

2. At Madhuri Sweets, the cost of one kilogram of Kajukatli is 7 times the cost of a BundiLaddu. Suresh bought 2 kilograms of kajukatli and 'N' kilograms BundiLaddu. If he had bought 2 kilograms BundiLaddu and 'N' kilograms of Kajukatli, he would have spent only 60% of what he actually spent. Find the value of N.

- A. 1    B. 4    C. 6    D. 8    E. Can't be determined

3. Amar travels from Aurangabad to Patna. He stops at equidistant places, that is Jahanabad and Atari during his journey. He covers the first one-third distance at a speed of 50 km/hr, the second one-third distance at a speed of 40 km/hr and the last one-third distance at a speed of 60 km/hr. However, while returning, his uniform speed is 75 km/hr and he stops only at Jaunpur, which is exactly at the mid-point between Aurangabad and Patna. What is the approximate average speed (in km/hr) of Amar during the whole journey, not considering his halt time?

- A. 50 km/hr    B. 55 km/hr    C. 59 km/hr    D. 60 km/hr    E. None of these

4. There are 2 bags. 1st bag contains 6 white and 6 blue balls. 2nd bag contains 5 white and 7 black balls. One ball is taken at random from first bag and put to second bag without noticing its colour. Now a ball is chosen at random from 2nd bag. What is the probability of the second ball being a white colour ball?

- A.  $\frac{11}{13}$     B.  $\frac{6}{13}$     C.  $\frac{5}{13}$     D.  $\frac{5}{12}$     E. None of these

5. A steam engine can run at a speed of 24km/hr without any coach. The decrease in the speed of the engine is directly proportional to the square root of the number of coaches attached. With 4 coaches speed of the engine becomes 20km/hr. Find the number of coaches that can be exactly pulled by the engine.

- A. 144    B. 143    C. 142    D. 243    E. None of these

6. A storekeeper has cooking oil of three different qualities (normal, good and excellent), each priced at Rs. 50/kg, Rs. 60/kg and Rs 90/kg respectively. A caterer needs 70 kg of oil and is willing to pay exactly Rs. 70 per kg. In which of the following ratios can the storekeeper mix the three oil varieties to satisfy the customer?

- A. 1 : 2 : 2      B. 1 : 3 : 4      C. 3 : 4 : 5      D. More than one of the above ratios.  
E. Can't be determined

7. Five year ago Santa's age was 's' years. 5 years from now Banta will be s2 years of age. The ratio of their present ages is 2 : 1. If the sum of present ages of Santa, Banta and his father is 40 years then find his father present age?

- A. 32 years      B. 29 years      C. 28 years      D. 45 years      E. None of these

8. Speed of India's first high speed train (Gatimaan Express) engine is 168 Km per hour when no compartment is attached, and the reduction in speed is directly proportional to the square root of the number of compartments attached, the speed of the train carried by this engine is 96 Km per hour with 9 compartments are attached, if 60% of seats are reserved for ladies, find the total number of seats reserved for ladies (total number of seats in 1 compartment is 100) when train runs at 96 Kmph?

- A. 4900      B. 2000      C. 2880      D. 1960      E. None of these

9. When the price of pulse was increased by 25%, a poor family reduced its consumption in such a way that the expenditure on Pulse is only increased by 20%. If 25 kg were consumed per month before the increase in price, find the new monthly consumption.

- A. 21 Kg      B. 22 kg      C. 23 kg      D. 24 kg      E. None of these

10. An urn contains 7 green, 6 black, 2 pink balls. Three balls are drawn at random, what is the probability that the three balls are of same colour?

- A.  $\frac{80}{91}$       B.  $\frac{33}{56}$       C.  $\frac{56}{455}$       D.  $\frac{11}{91}$       E. None of these

**Correct Answers:**

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

## Explanations:

1. Ratio of fruits in terms of dozen = Orange: Litchi: Apple = 6 : 4 : 14

Ratio of per fruit in terms of weight = Orange: Litchi: Apple = 160 : 480 : 640

∴ Ratio of fruits (combined) in terms of weight (6 × 160) : (4 × 480) : (14 × 64)

⇒ 960 : 1920 : 8960

Percentage contribution of Orange =  $\frac{960}{11840} \times 100 = 8.1\%$

Percentage contribution of Litchi =  $\frac{1920}{11840} \times 100 = 16.2\%$

Percentage contribution of Apple =  $\frac{8960}{11840} \times 100 = 75.7\%$

Hence, option (A) is correct.

2. The data is tabulated below

	BundiLaddu	Kajukatli
Price	X	7X
Quantity	N	2
Quantity	2	N

The amount actually spent is  $N \times X + 14 \times X = (N + 14) \times X$

The amount that Suresh would have spent if he bought 2 Bundi Laddu and 'N' kg of kajukatli is

$$2X + 7N \times X = \frac{3}{5}(N + 14) \times X$$

$$10 \times X + 35 \times N \times X = 3 \times N \times X + 42 \times X$$

$$32 \times N \times X = 32X$$

$$N = 1$$

Hence, option is (A) correct.

3. Suppose total distance between Aurangabad to Patna is 'X'

Average speed when Amar travels from Aurangabad to Patna

$$= \frac{X}{((X/3)/50) + ((X/3)/40) + ((X/3)/60)}$$

$$= \frac{X}{(X/150) + (X/120) + (X/180)}$$

$$= \frac{1800X}{(12X + 15X + 10X)}$$

$$= \frac{1800X}{37X} = \frac{1800}{37} \text{ km/hr}$$

$$\text{Reqd. average speed} = \frac{(2 \times (1800/37) \times 75)}{((1800/37) + 75)} \approx 59 \text{ km/hr}$$

Hence, option (C) is correct.

4. **Case 1:** first was a white ball

Now it is put in second urn, so total white balls in second bag = 5 + 1 = 6,

and total balls in second bag = 12 + 1 = 13

So probability of white ball from second bag =  $\frac{6}{13}$

**Case 2:** first was a blue ball

Now it is put in second bag, so total white balls in second bag remain 5,

and total balls in second urn = 12 + 1 = 13

So probability of white ball from second bag =  $\frac{5}{13}$

So required probability =  $\frac{6}{13} + \frac{5}{13} = \frac{11}{13}$

Hence option A is correct.

5. Let total number of coaches be  $N$   
And decrease in the speed =  $X$   
Since decrease in speed is directly proportional to the square root of number of coaches we have

$$X = k\sqrt{N}$$

where [ $k$  = constant] Now steam engine run at a speed of 24km/hr without any coach and

With 4 coaches speed of the engine becomes 20km/hr  
 $\Rightarrow$  decrease in speed =  $24 - 20 = 4$ km/hr

$$\Rightarrow 4 = K\sqrt{4}$$

$$\Rightarrow K = 2$$

$$\Rightarrow 24 = k\sqrt{N}$$

$$\Rightarrow 24 = 2\sqrt{N}$$

$$\Rightarrow \sqrt{N} = \frac{24}{2}$$

$$\Rightarrow N = 144 \text{ coaches}$$

Hence Number of coaches that can be exactly  
Pulled by the engine =  $(144 - 1)$  coaches = 143 coaches

Hence, option B is correct.

6. Let the weight of normal, good and excellent quality of oil bought by the caterer be  $x$ ,  $y$  and  $z$ , respectively.

$$\text{Price paid by the caterer for all three quantities} = \frac{50x + 60y + 90z}{x + y + z} = 70$$

$$\therefore 50x + 60y + 90z = 70x + 70y + 70z$$

$$\therefore 2x + y = 2z$$

Now, substitute the values from each option in the equation above and verify.

**Option 1:**  $x = 1, y = 2, z = 2$

The equation is satisfied for this set of values.

**Option 2:**  $x = 1, y = 3, z = 4$

The equation is not satisfied for this set of values.

**Option 3:**  $x = 3, y = 4, z = 5$

The equation is satisfied for this set of values.

Hence, option D is correct

7. If present ages of santa and banta be  $P_s$  and  $P_b$  respectively also his father's present age be  $f$  years then by the given condition

$$P_s - 5 = s \text{ and } P_b + 5 = s^2$$

$$P_s = s + 5 \text{ and } P_b = s^2 - 5$$

$$P_s : P_b = 2 : 1$$

$$\Rightarrow s + 5 = 2s^2 - 10$$

$$\Rightarrow 2s^2 - s - 15 = 0 \Rightarrow 2s^2 - 6s + 5s - 15 = 0$$

$$\Rightarrow (2s + 5)(s - 3) = 0$$

$$\Rightarrow s \text{ cannot be } \left(-\frac{5}{2}\right)$$

(not allowed since age cannot be negative)

$$\Rightarrow s = 3$$

Given  $P_s + P_b + f = 40$

$$\Rightarrow (3 + 5) + (9 - 5) + f = 40$$

$$\Rightarrow f = 40 - 12 = 28 \text{ years}$$

$$\text{Also } \frac{s + 5}{s^2 - 5} = 2 : 1 \text{ (verified)}$$

Hence, option C is correct.

8.  $96 = 168 - k\sqrt{9}$

$$\Rightarrow k\sqrt{9} = 72 \Rightarrow k = 24$$

$0 = 168 - 24\sqrt{x}$  (because maximum number of compartments that can be carried can be obtained by finding when the speed is zero and subtracting one from it)

$$168 = 24\sqrt{x} \Rightarrow x = 49$$

$\therefore$  Maximum number of compartments carried by engine =  $49 - 1 = 48$ .

Number of seats reserved for ladies in 1 compartment is 60

$\therefore$  total number of seats reserved for ladies in whole train is  $48 \times 60 = 2880$

Hence, option C is correct.

9. Let the price of pulse before increase = Rs. x

Total price of 25 kg pulse =  $25 \times x$

Then the new price of pulse =  $x + x \times \frac{25}{100} = \frac{125x}{100} = 1.25x$

Let new consumption = y kg

Now from question the expenditure on Pulse is only increased by 20%.

Since,  $(x \times 25) \times \frac{120}{100} = 1.25x \times y$

$$Y = \frac{25 \times 120 \times x}{1.25 \times x \times 100}$$

Y = 24 kg Hence, new consumption = 24kg.

Therefore, option (D) is correct.

10. Total no. of balls =  $7 + 6 + 2 = 15$

3 balls are selected from 15 balls =  ${}^{15}C_3 = 455$

Two cases of selecting three same balls

Case 1 : All 3 balls are of green colour

Selecting 3 balls from 7 balls =  ${}^7C_3 = 35$

Case 2 : All 3 balls are of black colour

Selecting 3 balls from 6 balls =  ${}^6C_3 = 20$

Hence, Required probability =  $\frac{35 + 20}{455} = \frac{11}{91}$

Hence, option D is correct.





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