

### Chapter -3:Sadhyathakalude Ganitham

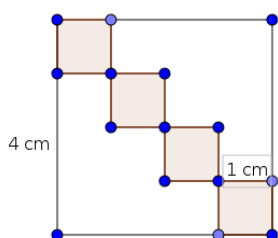
1)In class 10A there are 20 boys and 15 girls .In 10B there are 15 boys and 25 girls. One student from each class is to be selected for a competition. What is the probability of

- a) both are boys?
- b) at least one girl?

**Hint:** Total No. of pairs = 35 X 40 , Probability of both are boys =  $\frac{20}{35} \times \frac{15}{40} = \frac{3}{14}$

Probability of at least one girl =  $\frac{11}{14}$

2)Without looking if we put a dot in the figure, what is the probability that the dot being in the shaded portion ?



**Hint:** For identifying 16 small squares in the figure 1

Probability =  $\frac{4}{16} = \frac{1}{4}$

3)Ask somebody to say a two digit number.

- a) What is the probability of being the number 10?
- b) What is the probability that the number being a perfect square?

**Hint:** a) Total number of two digit numbers = 90 , P(the number being 10) =  $\frac{1}{90}$

b) No. of two digit squares = 16, 25, 36, 49, 64, 81

P(the number being a two digit square)=  $\frac{6}{90} = \frac{1}{15}$

4)In a box there are 12 black beads and some white beads. One bead is selecting randomly. The probability of getting a white bead is 1/3 then

what is the probability of getting a black bead?

How many beads are there in the box?

**Hint:** Probability of getting a black bead =  $1 - \frac{1}{3} = \frac{2}{3}$

$$x \times \frac{2}{3} = 12$$

$$x = \frac{12 \times 3}{2} = 18$$

- 5) In a bag there are 6 red balls and 4 white balls and in another box there are 5 red balls and 6 white balls.
- a) What is the probability of taking a white ball from the first bag?
- b) Which bag has more probability of getting a red ball?

**Hint:** probability of taking a white ball from the first bag =  $\frac{2}{5}$

probability of taking a red ball from the first bag =  $\frac{6}{10}$

probability of taking a red ball from the second bag =  $\frac{5}{11}$

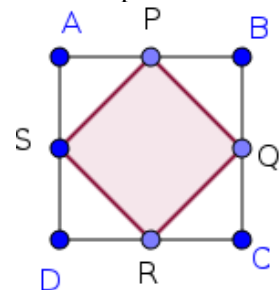
$$\frac{6}{10} > \frac{5}{11}$$

probability of taking a red ball from the first bag is greater

- 6) In the figure, ABCD is a square and P, Q, R, and S are the midpoints of its sides. Without looking into it, if we put a dot, what is the chance that the dot is in the shaded portion?

**Hint:** Area of the shaded portion = Half of the larger square

$$\text{Probability} = \frac{\text{Area of the smaller square}}{\text{Area of the larger square}} = \frac{1}{2}$$



- 7) A box contains 12 white beads, 10 red beads, and 8 blue beads. Without looking, if one bead is taken, what is the chance of it

- a) being a red bead?
- b) being a blue or white bead?

**Hint:** Probability =  $\frac{\text{Favourable outcomes}}{\text{Total outcomes}}$  a)  $\frac{10}{30} = \frac{1}{3}$  b)  $\frac{12+8}{30} = \frac{20}{30} = \frac{2}{3}$

- 8) In a box there are 20 red ink pens, 50 blue ink pens, and 30 black ink pens. One pen is taken at random from the box.

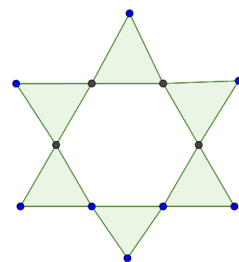
- a) What is the probability of getting a black ink pen?
- b) What is the probability of getting a black ink or blue ink pen?
- c) What is the probability of not getting a red ink pen?

**Hint:** a)  $\frac{30}{100} = \frac{3}{10}$ , b)  $\frac{80}{100} = \frac{4}{5}$  c)  $\frac{80}{100} = \frac{4}{5}$

- 9) Equilateral triangles are drawn on each side of a regular hexagon. If we put a dot in the figure, what is the probability that the dot is in the shaded portion?

**Hint:**

Total no. of equilateral triangles = 12, No. of shaded equilateral triangles = 6



$$\text{Probability} = \frac{6}{12} = \frac{1}{2}$$

10) Numbers from 1 to 10 are written in paper slips and put in to a bag and numbers 5,10,15, in another bag. If one number is taken from each bag without looking into it

a) write the pairs in which both are even numbers?

b) write the probability of getting at least one odd number?

**Hint:** (2,10) (4,10) (6,10) (8,10) (10,10) , at least one odd =  $30 - 5 = 25$

$$\text{probability} = \frac{25}{30} = \frac{5}{6}$$

11) A box contains slips numbered 1,2,3,4. Another box contains slips numbered 1,2,3. If one slip is taken from each,

a) Which will be the smallest sum of the numbers ?

b) What is the probability of getting the sum 6 ?

**Hint:** Least sum = 2 , No of pairs whose sum is 6 are (3, 3), (4, 2)

$$\text{probability of getting the sum 6} = \frac{2}{12} = \frac{1}{6}$$

12) There are 25 ripe and 15 raw mangoes in a box. Raju randomly selected a mango. After that Fazil is selecting a mango from the box.

a) What is the probability to select a ripe mango by Raju ?

b) What is the probability to select a ripe mango by Fazil ?

**Hint:** a)  $P(\text{the mango taken by Raju is ripen}) = \frac{25}{40} = \frac{5}{8}$  , If the mango taken by Raju is ripen ,

then , b)  $P(\text{the mangotaken by Fazil is ripen}) = \frac{24}{39}$  , If the mango taken by Raju is not ripen , then,

$P(\text{the mangotaken by fazil is not ripen}) = \frac{25}{39}$

13) There are 36 beads in a box, some are white and some are black. The probability of drawing a

white bead is  $\frac{1}{4}$  a) What is the probability of drawing a black bead?

b) How many black beads are there in the box?

**Hint:** a)  $P(\text{getting a black bead}) = 1 - \frac{1}{4} = \frac{3}{4}$  , b) No of black bead =  $36 \times \frac{3}{4} = 27$

14) Each of the 11 letters of the word MATHEMATICS is written on separate cards and put into a box. If we take one card randomly from it, a) What is the probability of getting the letter 'M'?

b) What is the probability of getting a vowel?

**Hint:** a)  $P(\text{getting the letter M}) = \frac{2}{11}$  , b) Vowels are A, E, A, I ,  $P(\text{getting a vowel}) = \frac{4}{11}$

15) In a box there are 20 ripen mangoes and some raw mangoes ,without looking into it if we take a mango from the box the probability of getting a raw mango is twice the probability of getting a ripen mango. How many raw mangoes are there in the box?

**Hint:** Probability of getting raw mango is twice the probability of getting ripen mango

So no. of raw mango = 2 X no. of ripen mangoes = 2 x 20 = 40

16) There are 21 blue buttons and 29 white buttons in a bag. Without looking into the bag, a button is taken randomly

a) write the probability for getting a blue button.    b) write the probability for getting a white button. c) which button has more chance?

**Hint:** probability for getting a blue button =  $\frac{21}{50}$  , probability for getting a white button =  $\frac{29}{50}$  1

probability for getting a white button is more

17) What is the probability that 5 Saturdays in the month of February may occur in a leap year ?

**Hint:** The month of February having 28 days contains 4 Saturdays

29th day of February can be one of the 7 days

$P(\text{it being Saturday}) = \frac{1}{7}$