THIRUVANANTHAPURAM EDUCATIONAL DISTRICT

WS3.2

MATHEMATICS STANDARD:10

MATHEMATICS OF CHANCE

1. Two dice are rolled together. From the number of pairs so get

(a) What is the probability of both being odd?

(b) What is the probability of both being same?

Possible pairs are

(1,1) (1,2) (1,3) (1,4) (1,5) (1,6)

(2,1) (2,2) — — — —

— — — — — —

— — — — — —

— — — — — —

— — — — — —

Total pairs = —

(a) Pairs with both numbers odd

(1,1) (1,3) (1,5)

(3,1) (3,3) —

(5,1) — —

Total pairs with both number odd = —

$$\text{Probability} = \frac{\text{Total number of favourable pairs}}{\text{Total pairs}}$$

$$= \frac{----}{----}$$

(b) Pairs with both numbers are same are

(1,1) (2,2) — — — —

Total pairs with both numbers are same = —

$$\text{Probability} = \frac{\text{Total number of favourable pairs}}{\text{Total pairs}}$$

$$= \frac{----}{----}$$

2. A box contains slips numbered Prime numbers less than 10 and another box contains slips numbered counting numbers up to 5. If one slip is taken from each box, Then

(a) What is the probability of both being prime numbers?

(b) What is the probability of both being even numbers?

(a) Prime numbers less than 10 are 2, 3, 5, 7

Total prime numbers = —

Natural numbers up to 5 are 1, 2, 3, 4, 5

Total natural numbers = —

$\therefore$ Total pairs = — × —

Pairs with both natural numbers are prime are (2,2) (2,3) (2,5)

(3,2) (3,3) (3,5) (5,2) — , — , (7,2) — , —

Total favourable pairs = —

Also favourable pairs = — × —

$$\text{Probability} = \frac{\text{Number of favourable pairs}}{\text{Total pairs}}$$

$$= \frac{----}{----}$$

(b) Pairs with both numbers are even are (2,2), —

Number of favourable pairs = —

$$\text{Probability} = \frac{----}{----}$$

3. There are 35 students in a class among which 20 are boys . In another class there are 30 students among which 15 of them are boys. If one from each class is selected

(a) What is the total pairs of students?

(b) What is the probability both being boys?

(c) What is the probability both being girls?

(d)What is the probability one being a boy and the other a girl?

(a) Total number of students in first class = ☐

Number of boys = ☐

Number of girls = ☐

Total number of students in second class = ☐

Number of boys = ☐

Number of girls $= \square$

Total pairs of students $= \square \times \square = \square$

(b) Number of pairs in which both are boys $= \square \times \square = \square$

Probability of both being boys $= \dfrac{\square}{\square}$

(c) Number of pairs in which both are girls $= \square \times \square = \square$

Probability of both being girls $= \dfrac{\square}{\square}$

(d) Number of pairs in which one is a boy

and the other a girl $= \square \times \square + \square \times \square = \square$

Probability of one being boy and the other a girl $= \dfrac{\square}{\square}$

4. There are 70 mangoes in a basket, 40 of which are unripe.

Another basket contains 50 mangoes, with 20 unripe.

If we take one mango from each basket,

(a) what is the probability of getting both being ripe ?

(b) what is the probability of getting both being unripe?

(c) what is the probability of getting at least one ripe mango?

Total number ways of taking a pair of mangoes

from each basket = — × —

= — ways

(a) Number of ripe mangoes in first basket = — - — = —

Number of ripe mangoes in second basket = — - — = —

Total pairs of ripe mangoes from each basket $= \_\_ \times \_\_ = \_\_$

Probability of getting both being ripe $= \dfrac{\text{Total pairs of ripe mangoes}}{\text{Total pairs of mangoes}}$

$= \dfrac{----}{----}$

$= \dfrac{----}{----}$

(b) Number of unripe mangoes from first basket $= \_\_$

Number of unripe mangoes from second basket $= \_\_$

Total pairs of unripe mangoes from each basket $= \_\_ \times \_\_ = \_\_$

Probability of getting both being unripe $= \dfrac{\text{Total pairs of unripe mangoes}}{\text{Total pairs of mangoes}}$

$= \dfrac{----}{----}$

$= \dfrac{----}{----}$

(c) At least one ripe means (i) first one ripe and other unripe (ii) both ripe (iii) first one unripe and other ripe.

∴ Total pairs of

at least one ripe mango $= (\_\_ \times \_\_) + (\_\_ \times \_\_) + (\_\_ \times \_\_)$

$= \_\_ + \_\_ + \_\_ = \_\_$

Probability of getting at least one ripe mango

$= \dfrac{\text{Total pairs of at least one ripe mango}}{\text{Total pairs of mangoes}}$

$= \dfrac{----}{----} = \_\_$