

# Assignment 1

AI1110: Probability and Random Variables  
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**10.15.2.5: Question.** A jar contains 24 marbles, some are green and others are blue. If a marble is drawn at random from the jar, the probability that it is green is  $\frac{2}{3}$ . Find the number of blue balls in the jar.

**Answer: 8.**

**Solution:** Given that the total number of marbles in the jar is 24. Let, the number of Blue marbles in the bag be  $x$  and the number of Green marbles in the bag be  $y$ . So, we have

$$x + y = 24 \quad (1)$$

Let, The Probability of drawing a 'A' coloured marble is  $\Pr(A)$ .

We know that the probability of drawing a Green marble is  $\frac{2}{3}$ .

$$\Pr(\text{Green}) = \frac{2}{3}$$

$$\frac{y}{24} = \frac{2}{3} \quad (2)$$

Multiplying both sides by 24, we get:

$$y = 16 \quad (3)$$

Now we can substitute this value of  $y$  in equation (1) to get:

$$x + 16 = 24 \quad (4)$$

Subtracting 16 from both sides, we get:

$$x = 8 \quad (5)$$

Therefore, There are 8 Blue marbles in the jar.