

## Assignment: Probability

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**Problem:** A die has two faces each with number '1', three faces each with number '2' and one face with number '3'. If die is rolled once, determine

1.  $P(2)$
2.  $P(1 \text{ or } 3)$
3.  $P(\text{not } 3)$

**Solution:** Total number of faces = 6

Let the faces of die be  $X = \{1, 2, 3\}$ .

Probability  $P = \frac{\text{Total number of favourable outcomes}}{\text{Total number of Possible outcomes}}$ .

Probability	Value
$P(1)$	$\frac{1}{3}$
$P(2)$	$\frac{1}{2}$
$P(3)$	$\frac{1}{6}$

Table 2: Probabilities of X

i)  $P(X=2) = \frac{1}{2}$

ii)

$$P(X = 1 + X = 3) = P(1) + P(3) - P(1, 3) \quad (1)$$

$$= \frac{1}{3} + \frac{1}{6} (\because P(1, 3) = 0) \quad (2)$$

$$= \frac{3}{6} \quad (3)$$

$$P(X = 1 + X = 3) = \frac{1}{2} \quad (4)$$

iii)

$$P(X = 3)' = 1 - P(3) \tag{5}$$

$$= 1 - \frac{1}{6} \tag{6}$$

$$= \frac{5}{6} \tag{7}$$