

Chapter 14

PROBABILITY

- 1) Classify the following experiments as random or determinist:
 - a) Open the water tap.
 - b) Toss a coin.
 - c) Brake a car.
 - d) Draw a card from a deck of cards.
- 2) Give two examples of random experiments.
- 3) Give another two examples of deterministic experiments.
- 4) We draw a card from a deck of cards:
 - a) What is the sure event?
 - b) Give an example of an impossible event.
- 5) In a pencil box there are 4 colour pencils: red, green, blue and yellow.
We take one pencil at random.
 - a) What is the sample space?
 - b) Name one elementary event.
 - c) Name one event (event A) with three colours (non-elementary).
- 6) In a pencil box there are 4 colour pencils: red, green, blue and yellow.
We take one pencil at random.
 - a) What is the sample space?
 - b) Name one elementary event.
 - c) Name one event (event A) with three colours.
 - d) What is \bar{A} ?
 - e) What is the "sure event"?
 - f) Name one "impossible event".
 - g) Name another event (event B).
 - h) Write $A \cup B$.
 - i) Write $A \cap B$.

7) In a pencil box there are 8 colour pencils: red, orange, yellow, green, blue, purple, and violet.

We take one pencil at random.

- a) Write two events (A and B).
- b) Write \bar{A} .
- c) Write $A \cup B$.
- d) Write $A \cap B$.
- e) Write $\bar{A} \cup B$.
- f) Write $\bar{A} \cap B$.
- g) Are A and B compatible? Why?
- h) Are A and B mutually exclusive? Why?

8) In a pencil box there are 6 colour pencils.

We take one pencil at random. We repeat the experiment 10 times, the results are: purple, yellow, blue, green, blue, red, blue, red, purple, and green.

- a) What is the absolute frequency of colour red?
- b) What is the relative frequency of colour red?
- c) What is the absolute frequency of colour yellow?
- d) What is the relative frequency of colour yellow?
- e) What is the absolute frequency of colour blue?
- f) What is the relative frequency of colour blue?
- g)

9) In a football game a goal keeper stops 2 penalties from a total of pencil box there are 8 colour pencils: red, orange, yellow, green 5 penalties.

- a) What is the absolute frequency of stopping a penalty?
- b) What is the relative frequency of stopping a penalty?

10) Use Laplace's Rule to calculate the probability of getting an even number when we roll a dice.