Maths Knowledge Organiser
YEAR 9 FOUNDATION – UNITS 3 to 5

chaseterraceacademy

Key Language

| 1	Outcome	Something that can happen in a probability situation. e.g. when a dice is rolled, one possible outcome is 2
2	Event	A combination of outcomes. e.g. an even number on a dice
3	Relative Frequency	How often something happened relative to the number of trials in a probability experiment. (Used to estimate probability.)
4	Theoretical probability	Probability based on reasoning.
5	Experimental probability	Probability estimated from the result of an experiment.
6	Expected outcomes	What you might 'expect' to happen in a certain number of trials. e.g. if you roll a dice 60 times, you expect ten 1's, ten 2's, etc.
7	Speed	How fast an object is moving
8	Distance	How far an object has travelled

Relative frequency

In a probability experiment, a relative frequency compares the number of times an outcome happens with the total number of trials.

$$\text{Relative Frequency} = \frac{number\ of\ times\ the\ outcome\ happens}{total\ number\ of\ trials}$$

Know

Speed

Make sure you know the speed-distance-time triangle, and how to use it.
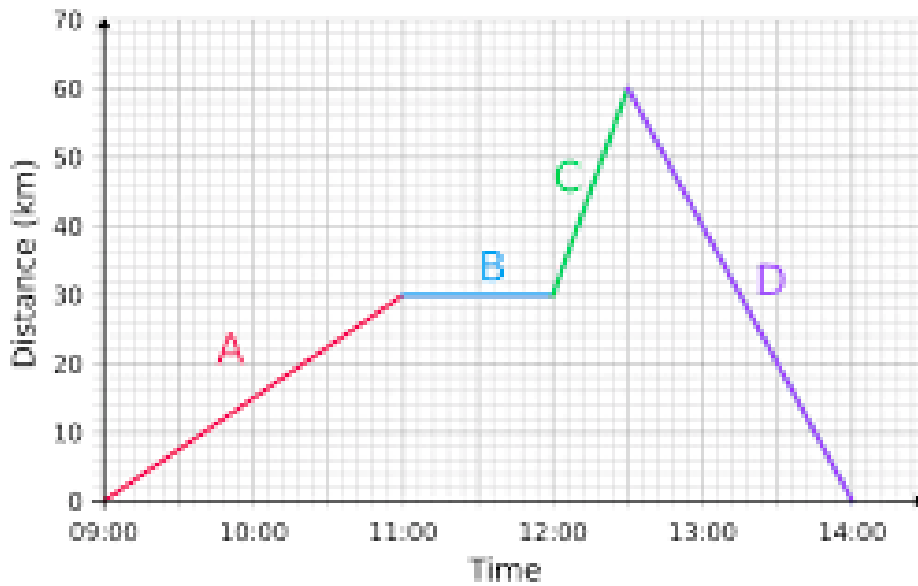

$D = S \times T$

$S = D \div T$

$T = D \div S$
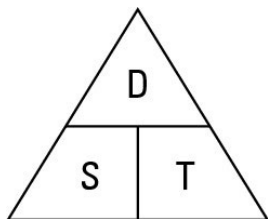
Distance-time graphs
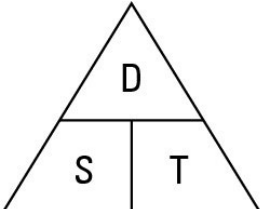
Know

Key features of this graph:

  Section A: heading away from starting point; straight line means a constant speed
              (The *gradient* tells you the speed)
  Section B: horizontal line means stationary (not moving)
  Section C: steeper than section A, means travelling faster
  Section D: returning to the starting point (a return journey)

Notes Section:

chaseterraceacademy

PRACTICE QUESTIONS

1. What word do we use for *something that could happen* in a probability situation?
2. What is an *event*?
3. A fair 6-sided dice is rolled. Write down one of the possible outcomes.
4. How would you calculate the *relative frequency* of an outcome, following a probability experiment?
5. What do *relative frequencies* help you to estimate?
6. Draw a formula triangle for speed.
7. On a distance-time graph, what does the gradient of a line tell you?
8. On a distance-time graph, what does a horizontal line represent?
9. On a distance-time graph, what would a return journey look like?
10. A letter is picked at random from the alphabet. Write down one possible outcome.
11. What word is used for a combination of outcomes?
12. What word tells you how fast an object is moving?
13. Following an experiment, what could you calculate to help you estimate a probability?
14. Write a formula for distance, in terms of speed and time.
15. Write a formula for time, in terms of speed and distance.
16. On a distance-time graph, how would you know that one part of the journey was at a different speed to another part of the journey?

ANSWERS

1. Outcome
2. A combination of outcomes
3. 1, 2, 3, 4, 5, 6 (any of these)
4.
$$\frac{number\ of\ times\ the\ outcome\ happens}{total\ number\ of\ trials}$$
5. (theoretical) probability
6.

7. The speed
8. Something that is stationary
9. A line sloping downwards
10. (any of A-Z)
11. Event
12. Speed
13. Use a relative frequency
14. $D = S \times T$
15. $T = \dfrac{D}{S}$
16. One line would be steeper than the other

Do