In preparing for the N levels, one has to be familiar with the types of questions that are frequently posed. The best way to achieve this is to get the 10-years series (TYS) as it provides you with the questions from the N Level Examinations for the last 10 years. At this stage, you should be getting the Yearly TYS for practice. Practice questions from at least the last five years, if possible.

If you look at the questions, you should be able to spot many questions from year to year that are similar in how they are posed (or requiring similar skills or knowledge). It is advisable to know how to do them well. If you found that there is always a particular type of question that you are unable to solve, find a resource person, like a teacher or more knowledgeable classmate to help. There will be sufficient number of these types of questions for you to practice; attempt them and you should be able to pass the paper. Understand how to do these questions well before attempting the harder application questions.

After you have attempted 1 paper, you should self-mark and note the questions that were not attempted well (answer was wrong) or you were not able to solve. Make it a habit to close these gaps by consulting with your teachers or knowledgeable friends. A test on whether you have mastered the question is when the same type of questions appears again in another paper, you should be able to solve it on your own

You should be consistent in your studies. Plan to spend at least some time every day for your mathematics revision (practising past year papers and closing gaps).

When attempting a paper, please read the question carefully to ensure that you have answered it well (units and accuracy) and that you have not missed out or misinterpret any information given.

Topic: Algebra.

There are a few Algebraic concepts that you must be familiar.
This includes
Simplification and solving of linear equations
Expansion
Factorisation –   Taking out what is common in the terms [$3x^2 + x = x(3x + 1)$]
  -   Difference of squares [$4x^2 - 25 = (2x + 5)(2x - 5)$]
  -   Factorisation using cross or window method
  -   Factorisation by grouping
Solving quadratic equations   - By factorisation
  - By formula
  - By completing the square

Topic: Arithmetic

You should understand concepts like percentages and ratios, rate and speed.
You should know how to do prime factorisation, LCM and HCF

You should know concepts like Hire Purchase, profit and loss, money exchange, simple interest and compound interest.

Scale and Map
Need to know: 10 mm – 1 cm
100 cm – 1 m
1000 m – 1 km

Convert between millimetres, centimetres, metres and kilometres where necessary. Hence, we need to first find the scale for area by squaring the ratio for length. i.e. $(2 \text{ cm})^2 : (0.18 \text{ km})^2$. Hence, scale for area $= 4 \text{ cm}^2 : 0.18^2 \text{ km}^2$.

Topic: Congruency and Similarity

Remember that the order of the vertices is taken into consideration. It is advisable for students to write the names of two congruent or similar figures one on top of the other. For example, ABC WXY,
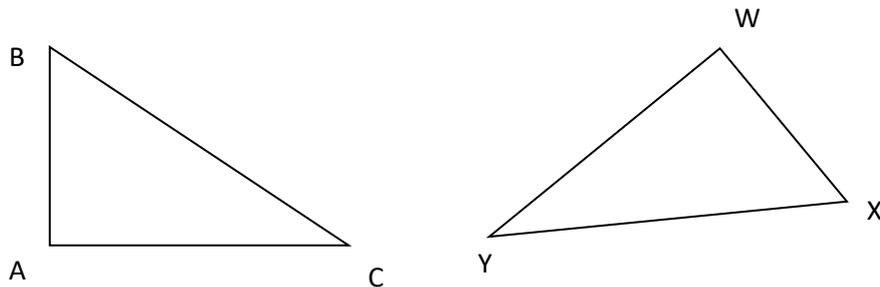
Topic: Indices

Be familiar with the Laws of Indices. Especially negative fractional indices. For example,

$$\left(\frac{2}{5}\right)^{-3} = \left(\frac{5}{2}\right)^3 = \frac{5^3}{2^3} = \frac{125}{8}$$

Topic: Statistics

You need to know Mean, Median and Mode. Interquartile Range, Range, percentile.
Be familiar in using your calculator to find mean and standard deviation for data with and without frequency.

Know how to use,
1) box-and-whiskers diagram
2) Dot diagram
3) Stem and leaf
4) Histogram, Pie charts, Pictogram
5) Cumulative Frequency graph

Statistical Diagrams

Explain why a given statistical diagram leads to misinterpretation of data. Look out for some clues on how to answer questions on misleading Statistical Diagrams by looking at the axis-labels and scale of the axes. For diagrams without axes like pictogram and pie chart, perhaps even for dot diagrams, you may look at the size of the icons, dots or sectors in relation to the value they represent. Also, the construction of statistical charts is no longer required. Be familiar with the purposes and uses, advantages and disadvantages of the different forms of statistical representations.

Topic: Trigonometry

For right-angled triangles, you need to know
1) Trigonometric ratios

TOA $\quad \tan\theta = \dfrac{opposite}{adjacent}$

CAH $\quad \cos\theta = \dfrac{adjacent}{hypothenus}$

SOH $\quad \sin\theta = \dfrac{opposite}{hypothenus}$

2) Pythagoras theorem
3) Area of triangle $= \dfrac{1}{2} \times base \times height$

For any general triangle
1) Sine rule
2) Cosine rule
3) Area of triangle $= \dfrac{1}{2} ab\sin C$

Bearings

Know how to calculate bearings and measure angles (bearings) using a protractor. Remember that bearing is always represented with 3 digits [010°, 310.5^o]

Topic: Mensuration

Be familiar with the formulas that are not given for example Circles, Trapezium, Parallelogram, Prisms and Pyramids. (also, area of sector and arc length – in degrees)

When attempting a question, if a certain value from one part of the question (that you have solved earlier) is needed for later parts, the value needs to be more accurate (having more decimal places if applicable), instead of using the final answer you got from the previous part (which will be in 3 significant figures). This is to avoid round-off errors.

Topic: Coordinate Geometry

You must know how to
1) Find gradient – Given 2 points
                   - Given equation of straight line
2) Calculate length
3) Find equation of straight line

Note:
Any vertical line will cut the x–axis at 1 point. If it cuts the x-axis at point (3 , 0), then the equation of the vertical line is $x = 3$.
Any horizontal line will cut the y-axis at 1 point. If it cuts the y-axis at (0 , -2), then the equation of the horizontal line is $y = -2$.
This also means that the x-axis has equation $y = 0$.

Topic: Probability

simple probability: $\dfrac{favourable\,outcome}{possible\,outcomes}$

possibility diagram
tree diagram

Graph

Need to know how
1) to plot graph and draw a smooth curve
2) read the graph
3) find the tangent at any point

Construction
Know how to construct
1) Perpendicular bisector (equidistant from 2 points)
2) Angle bisector (equidistant from 2 lines)

Circle properties

1) Triangle in a semicircle is right-angled
2) Angles in the same segment are equal
3) Angles in opposite segment are supplementary (they add up to 180°)
4) Angle at the centre is twice angles at circumference.

Symmetric properties of circles
The angle between a radius and tangent is 90°.