Tips

Things to remember

1. Standard trigonometric values.

Learn the table

degrees	30°	45°	60°
radians	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$
sin	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{\sqrt{3}}{2}$
cos	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$
tan	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$

2. Recurrence relations:

Write down the relation first in the form: $u_{n+1} = mu_n + c \quad u_0 = ...$

Remember if something is reduced by 20%, you are left with 80% i.e. $m = 0.8$

Condition for limit. $|m| < 1$ or $-1 < m < 1$

Learn the limit formula: $L = \frac{c}{1-m}$

3. Perpendicular gradients

To show two lines are perpendicular, write down and show that $m_1 \text{ x } m_2 = -1$

To find a perpendicular gradient us: $m_2 = -\frac{1}{m_1}$

4. Vectors and collinearity (3 steps)

Show that vectors are **scalar multiples**

This means that the lines are **parallel**

If there is a **common point** then the points are **collinear**.

5. Vectors and Ratios

Do not write vectors as division.

You should **NOT** write: $\frac{\overrightarrow{AB}}{\overrightarrow{BC}}$. Vector division is undefined.

Tips *continued .....*

Things to remember

6. Sketches

Use sketches to help you see what is going on.

7. The straight line.

Median: Line from a vertex to **MID-POINT** of opposite side.

Altitude: Line from a vertex **PERPENDICULAR** to opposite side.

Perpendicular bisector: Line passing through the **MID-POINT** of a line and **PERPENDICULAR** (at 90°) to it.
The line does not usually go through a vertex.

8. Differentiation

Before differentiating put into straight line form.

Before evaluating - put back into root form or positive index form.

Look out for examples of the chain rule.

$$\frac{d}{dx}\left\{\left(f(x)\right)^n\right\} = n\left(f(x)\right)^{n-1}\cdot f'(x)$$

The simple case is: $\frac{d}{dx}(.....)^n = n(.....)^{n-1}\cdot\frac{d(.....)}{dx}$

9. Integrals

If there are no limits on the integral sign, then it is an **INDEFINITE** integral.

You **MUST** include a **constant of integration** C.

Look out for the standard integral: $\int (ax+b)^n\ dx \rightarrow \frac{(ax+b)^{n+1}}{(n+1)\cdot a} + C$

When writing out an integral – do NOT forget to write dx

Area between two curves: $\int_a^b g(x) - f(x)\ dx$

where $g(x)$ is the upper curve and $f(x)$ is the lower curve

and a and b are the x-coordinates of the intersection of the two curves.

There are many more tips, I am sure you can add to these yourself.