

# Misc

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# Problem Solving Matters

## General Tips

- Be lazy; only do necessary work
- Write in sentences to explain (especially in proofs)
- Avoid long and/or complicated calculations
- Draw diagrams and make them big
- In diagrams, label things and add lines
- Look for similar shapes (often triangles)

## Tips For Sketching Graphs

- Look for symmetries
- Think about periodicity
- Look for turning points (0 derivative)
- Look for asymptotes
- Try values of  $x$  like 0, 1, -1, etc.
- If there's a trig function involved, try multiples of  $\pi$
- See what happens when  $x$  tends to 0 or  $\pm\infty$

## Things To Remember

- $\log_a b \times \log_b a = 1$
- $\log_{a^c} b^c = \log_a b$
- When graphing  $y^2 = f(x)$ , draw the positive branch of  $y = \sqrt{f(x)}$  and reflect it in the  $x$  axis
- $\log x$  is negative when  $0 < x < 1$