GRAPHICAL SOLUTION OF EQUATIONS

There are usually standard techniques for solving equations associated with various functions, e.g. linear equations, quadratic equations and trigonometric equations. However, there is usually no standard technique for solving equations that combine two or more different functions, for example:

- $\sin x = e^x$
- $\cos x = \log x$

Equations like this 'transcend' (go beyond) algebraic equation-solving techniques and hence are called **transcendental equations**. You must instead use various non-algebraic methods to find approximate solutions. The most accurate method is to calculate numerical solutions using graphing software. Another method is to sketch the graphs of the two functions, use the graphs to find approximate x-values of any intersection points, then use a calculator to refine these approximate x values as closely as possible. This section extends the scope of the equations covered in Section 12.3.