MATH151 − Autumn 2009
Optional Tutorial Sheet − Week 11

1. Solve for m if
$$m(m-8) + 16 = 0.$$

2. Write down the equation of the straight line through $-4, 2$ that is perpendicular to the line $2x + y + 6 = 0$.

3. Write down $\sin\theta$ if $\cos\theta = \dfrac{2}{5}$ and $\tan\theta < 0$.

4. Find, if possible, all number $0 \leq \theta \leq 2\pi$ for which $\cos\theta = -\dfrac{1}{\sqrt{3}}$.

5. Sketch the graph of the function $y = f(x) = -2 + 3\cos 3x$, noting its period.

6. In an experimenta a certain biological variable y is observed to reach its maximum 40 seconds after the start of the experiment and its minimum 20 seconds later. The behaviour is also seen to vary in an approximately sinusoidal manner, oscillating between the values $y = 3$ and $y = 6$. Find a formula for y as a function of t.