

1. **(T3.6, F2.3, C6.3 - R,E) (CI)** Given  $g(x) = -3\cos(2x) + 1$  on the domain  $0 \leq x \leq 2\pi$ ,  
(Cirrito 10.3, p337)
  - a. Determine the amplitude, the period and the equation of the axis of the curve.
  - b. Determine where the maximum and minimum points are.
  - c. Hence, sketch  $g$ .
  - d. On what interval is  $g$  increasing? On what interval is  $g$  decreasing?
  
2. **(SP5.6 - R) (CA)** For events A and B,  $P(A) = 0.7$ ,  $P(A \cup B) = 0.9$ ,  $P(A \cap B) = 0.3$ . Find:  
(Oxford 3.4, p85)
  - a.  $P(B)$
  - b.  $P(B' \cap A')$
  - c.  $P(B \cap A')$
  - d.  $P(B' \cup A')$
  - e.  $P(B|A')$
  
3. **(T3.3 - E) (CI)** SKILL: Trig Identities. Given that  $\sin(2x) = -\frac{24}{25}$  and  $\pi \leq x \leq \frac{3\pi}{2}$ , find:
  - a.  $\cos(2x)$
  - b.  $\tan(2x)$
  - c.  $\sin(4x)$
  - d.  $\cos(4x)$
  - e.  $\cos(x)$
  
4. **(T3.5 - R) (CI)** Solve the following Quadratic Trig Equations on the interval  $-2\pi \leq x \leq 2\pi$  :
  - a.  $\sin^2 x - \sin x = 0$
  - b.  $\cos^2 x - 2 \cos x + 1 = 0$
  
5. **(C6.3 - N) (CA)** Graph the quartic polynomial  $p(x) = -x^4 + 2x^2 - x + 1$  on your TI-84 and hence determine:  
(Cirrito 20.2.2, p651)
  - a. the x-coordinate(s) of the extremas.
  - b. the domain interval(s) in which the function values are **decreasing**.
  - c. the x-coordinates of the inflection point(s).
  - d. the domain interval(s) in which the function is **concave up**.
  - e. Include a sketch, labelling the important points from (a) and (c).

6. **(F2.1, F2.2, F2.4, F2.5, F2.6 - R) (CI)** Find the equation of the inverse functions of the following functions:

*(Cirrito 5.4.2, p160)*

a.  $f(t) = 3e^{-0.25t} + 4$ .

b.  $g(x) = \frac{2x-3}{x+4}$ .

c.  $h(x) = 2x^2 + 4x - 6$

7. **(SP4.7 - N) (CI)** A bakery has six donuts on a tray labelled 2-for-1. Although the donuts look identical, 2 are standard donuts and 4 are jam-filled. A customer randomly chooses three donuts. Let  $X$  denote the number of jam-filled donuts the customer purchased.

*(Cirrito 16.1, p.533)*

- a. Complete the probability distribution table for  $X$ .

| $x$        | 0 | 1 | 2 | 3 |
|------------|---|---|---|---|
| $P(X) = x$ |   |   |   |   |

- b. Represent this data as a bar graph

- c. Find:

i.  $P(X \leq 1)$

ii.  $P(X > 2 \mid X > 0)$

8. **(A1.1 - R) (CA)** Find the sum of the first 50 terms of an arithmetic sequence, given that the 15th term is 34 and the sum of the first 8 terms is 20.

*(Cirrito 8.2.4, p264)*