1. **(GT3.6 - E) (CA)** For the ΔHKJ, side HK = 18 cm and side JK = 15 cm and $\angle$ JHK = 53°. Determine the measure of side HJ and hence the area of the triangle.
(Cirrito 9.5.2, p297)

2. **(GT3.5 - E) (CI) SKILL**: Quadratic Trig Equations. Solve the following given $0 \leq x \leq 2\pi$
(Oxford, Chap 13D, p455)

   a. $2\cos^2 x + \cos x - 1 = 0$
   b. $2\sin^2 x - 3\sin x + 1 = 0$

3. (**C5.1 - N**) (**CA**) Continuing this work with understanding limits, evaluate the following limits - my suggestion is to graph each function. (in other words, determine the limiting function value of $f(x)$ in the following scenarios .....)

   a. (i) $\lim_{x \to -1} (5)$ (ii) $\lim_{x \to -\frac{5}{2}} (-x+2)$ (iii) $\lim_{x \to 2} (x^3 - x^2 - 4)$
   b. (i) $\lim_{x \to 1} (-\frac{x^2}{2} + 2x + 4)$ (ii) $\lim_{x \to 3} (-\sqrt{x+3})$ (iii) $\lim_{x \to \frac{3}{2}} (-\sqrt{4+2x})$

4. **(C5.1 - N) (CI)** Find the equations of derivatives of the following functions:
(Cirrito 19.1, p608)

   a. i. $g(x) = x^3 + 2x^2 - 15x - 13$ ii. $h(x) = (2x - 7)^2$
   b. i. $k(x) = \frac{x}{2} - 6$ ii. $m(x) = \frac{x^4}{4} + \frac{3x^3}{2} - 2x^2$

5. **(C5.3 - N) (CI)** For the function $f(x) = x^4 - 2x^3$, determine:
(Cirrito 20.2, p649)

   a. the equation of the derivative of $f(x)$.
   b. the zeroes of f`.
   c. Hence or otherwise, find the coordinates of the **stationary points** of f.
   d. Hence or otherwise, find the **intervals of increase and decrease** of f.
   e. Sketch a graph of f. Then use your calculator and graph f and compare.

6. **(SP5.5 - R) (CI)** A bag contains 4 green marbles and 6 yellow marbles. Sam selects one marble from the bag and then **without** replacement, he selects a second marble. *(Oxford 3.5, p89)*

   a. Write down the probability that the first marble Sam selects is green.
   b. Find the probability that Sam selects two green marbles.
   c. Find the probability that Sam selects two marbles of different colour.

7. **(GT 3.5 - E) (CI)** For each of the following angles, determine the value of the sine, cosine, and tangent ratios.
(Cirrito 10.1, p.315)

a. $\frac{\pi}{4}$ b. $\frac{7\pi}{4}$ c. $-\frac{3\pi}{2}$

d. $-\frac{5\pi}{6}$ e. $\frac{4\pi}{3}$ f. $-\frac{\pi}{4}$

8. **(SP5.8 - N) (CA)** Mr. Smith is playing a game, wherein he is tossing a biased coin. The probability of obtaining heads on this biased coin is ⅓ .
(Cirrito 16.3, p544)

a. He tosses the coin five times. Find the probability of getting
   i. at least three heads;
   ii. two heads and three tails.

b. Mr. Dunham also plays the game and he now tosses the coin 12 times.
   i. Find the expected number of heads.
   ii. Mr. Dunham wins $ 10 for each head obtained, and loses $ 6 for each tail. Find his expected winnings.