Question 1 (12 marks) Use the Question 1 Writing Booklet.

(a) Solve $x^2 = 4x$. **2**

(b) Find integers a and b such that $\dfrac{1}{\sqrt{5}-2} = a + b\sqrt{5}$. **2**

(c) Write down the equation of the circle with centre $(-1, 2)$ and radius 5. **1**

(d) Solve $|2x + 3| = 9$. **2**

(e) Differentiate $x^2 \tan x$ with respect to x. **2**

(f) Find the limiting sum of the geometric series $1 - \dfrac{1}{3} + \dfrac{1}{9} - \dfrac{1}{27} + \cdots$. **2**

(g) Let $f(x) = \sqrt{x-8}$. What is the domain of $f(x)$? **1**