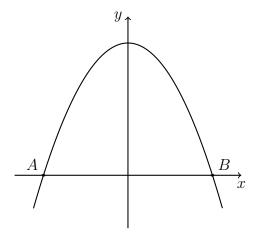
[3]

Do Now Quiz: Calculus & Trigonometry - with calculator

Pick one problem from each page.

1. Medium Let $f(x) = 6 - x^2$. Part of the graph of f is shown in the following diagram.

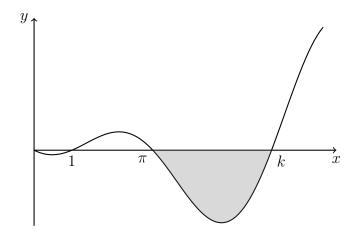


(a) The graph crosses the x-axis at the points A and B.

Find the x-coordinate of A and of B.

(b) Find the area of the region enclosed by the graph of f and the x-axis. [3]

2. Spicy The graph of $y = (x - 1)\sin x$, for $0 \le x \le \frac{5\pi}{2}$, is shown below.



(a) The graph has x-intercepts at 0, 1, j, and k. Find j and k. [2]

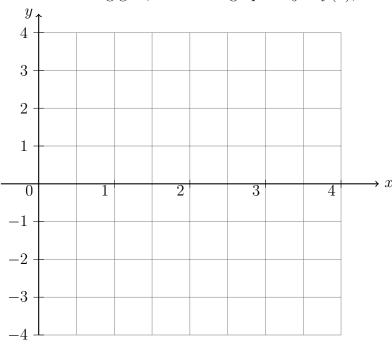
(b) The shaded region is rotated 360° about the x-axis. Let V be the volume of the solid formed. Write down an expression for V. [3]

(c) Find V. [2]

Name:

3. Medium Let $f(x) = 3\sin(\pi x)$.

- (a) Write down the amplitude of f. [1]
- (b) Find the period of f. [2]
- (c) On the following grid, sketch the graph of y = f(x), for $0 \le x \le 3$.



[3]

4. Spicy Let $f(x) = \sin(x + \frac{\pi}{4}) + k$. The graph of f passes through the point $(\frac{\pi}{4}, 6)$.

- (a) Find the value of k. [2]
- (b) Find the minimum value of f(x). [2]
- (c) Let $g(x) = \sin x$. The graph of g is translated to the graph of f by the vector $\begin{pmatrix} p \\ q \end{pmatrix}$.

 Write down the value of p and q.

[2]