## 1.4    Applying algebraic and calculus skills to properties of functions
- **Sketch related functions**
  **(Modulus or Inverse Functions, Functions Differentiated, Translations and Reflections)**

**1**  Given that $f(x) = \sin(2x)$ , sketch the graph of $\left|3f(x)\right|$ where $0 \le x \le p$

**2**  Given that $f(x) = \sin(4x)$ , sketch the graph of $\left|5f(x)\right|$ where $0 \le x \le p$

**3**  Given that $f(x) = \cos(2x)$ , sketch the graph of $\left|3f(x) + 2\right|$ where $0 \le x \le p$

**4**  Let $f(x)$ be a function with a maximum turning point at $(a,14)$ and a minimum turning point at $(b,-3)$, $0 < a < b$. The graph crosses the $y$-axis at $(0,-1)$.
(a) Sketch the graph $f(x)$ on the interval $0 \le x \le b$
(b) Hence sketch the graph of $g(x) = \left|f(x) - 3\right|$ on the interval $0 \le x \le b$

**5**  Let $f(x)$ be a function with a minimum turning point at $(p,-8)$ and a maximum turning point at $(q,5)$, $p < q < 0$. The graph crosses the $y$-axis at $(0,0)$.
(a) Sketch the graph $f(x)$ on the interval $p \le x \le 0$
(b) Hence sketch the graph of $h(x) = \left|f(x) + 2\right|$ on the interval $p \le x \le 0$

**Answers:**

**1**



**2**



**3**
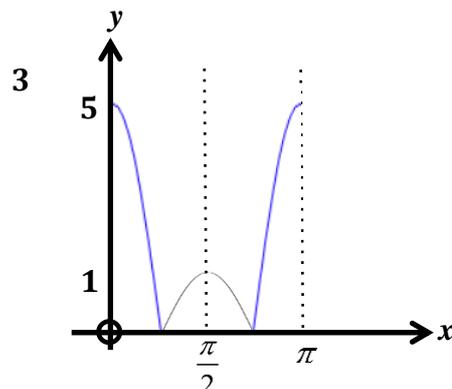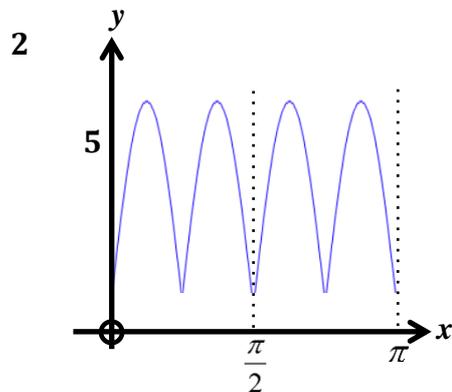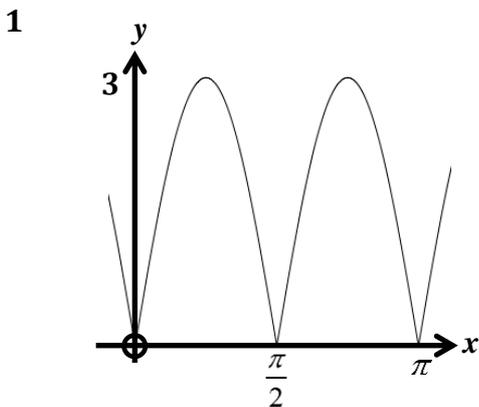
# Advanced Higher Mathematics – Applications of Algebra and Calculus
## Unit Assessment Preparation - Further Practice Questions

**4 (a)**



(a, 14)

-1

(b, -3)

$0 > a > b$

**4 (b)**



(a, 11)

11

(b, 6)

6

4

$0 > a > b$

**5 (a)**



(q, 3)

(p, -8)

$p < q < 0$

**5 (b)**



(p, 6)

(q, 5)

2

$p < q < 0$