

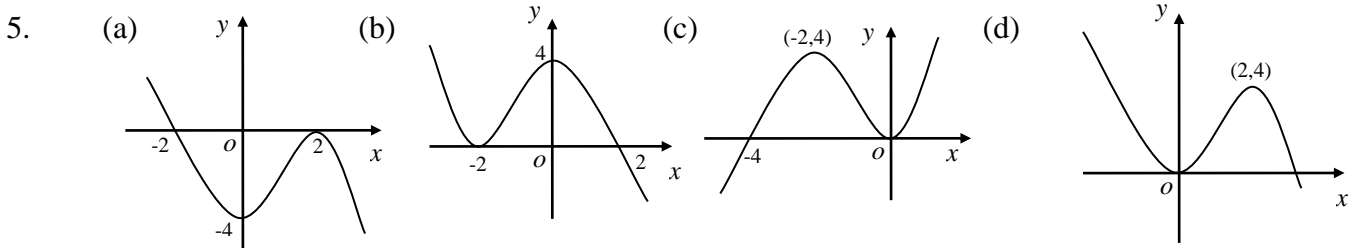
## Functions 1 (answers)

1. (a)  $f(g(-3)) = 0$  (b)  $g(f(x)) = \frac{1}{2}(x + 3)$  (c) For  $f^{-1}(x) = \frac{1}{2}(x + 3) = g(f(x))$

2. (a)  $h(f(2)) = 28$  (b)  $f(h(x)) = 9x^2 + 42x + 52$  (c)  $x = -1$  or  $x = 4$

3. Proof

4. (a)  $p = 2$  and  $q = 4$  (b)  $h(f(x)) = \frac{1}{2}(10x^2 - 1)$  (c)  $k = 5$



## Functions 2 (answers)

1. (a) i) 17 ii) 12

(b) i)  $9x^2 - 3x$  ii)  $3a^2 + 3a - 1$  iii)  $k^4 + 2k^3 + 2k^2 + k$

(c)  $g^{-1}(x) = \frac{x+1}{3}$

2. (a)  $f(h(x)) = \frac{2x^2}{3}$

(b)  $f^{-1}(x) = \frac{2}{3x} + 1$ ,  $x \neq 0$ ,  $x \in \mathbb{R}$

3. (a) Proof

(b) Proof

4.  $y = f(x - 9) - 10$