

# MATH141 -Worksheet

## FUNCTIONS - Answers

1. (a) 14                      (b) 0                      (c)  $a^2 + 5a$                       (d)  $a^2 + 7a + 6$                       (e)  $a^2 + 3a - 4$
2. (a) 12                      (b) -3                      (c)  $5a + 7$                       (d)  $5b - 8$                       (e) 10
3. (a) 10                      (b) 2                      (c) -2                      (d) 4                      (e)  $4a + 4h + 2$
4. (a) 5                      (b) -79                      (c) 2                      (d)  $3a^2 + 2$                       (e)  $3[h(x)]^3 + 2$
5. (a) 12                      (b) 12                      (c) -20                      (d)  $x = 4$  or  $-4$
6. (a)  $x = \frac{1}{3}$                       (b)  $x = \frac{3}{2}$                       (c)  $x = \frac{1}{6}$
7. (a)  $\frac{5}{3}$                       (b)  $\frac{7}{2}$                       (c) No. Division by zero is not allowed.
8. (a) 4                      (b) 4                      (c) 4                      (d) 4                      (e) 4
9. (a)  $f\left(\frac{1}{2}\right) = \frac{1}{2} - \frac{1}{\frac{1}{2}} = \frac{1}{2} - 2 = -\frac{3}{2}$                        $f(-2) = -2 + \frac{1}{2} = -\frac{3}{2} = f\left(\frac{1}{2}\right)$                       (b)  $a = 1$  or  $-1$
10. (a)  $g(a) = a^2 + 3 + \frac{1}{a^2}$                        $g\left(\frac{1}{a}\right) = \left(\frac{1}{a}\right)^2 + 3 + a^2 = g(a)$                       (b)  $g(-a) = (-a)^2 + 3 + \left(\frac{-1}{a}\right)^2 = a^2 + 3 + \frac{1}{a^2} = g(a)$ .
11. (a) 10                      (b) -2                      (c) 0                      (d)  $2a^2$
12. (a) 0                      (b) -3                      (c) 2                      (d) -1                      (e)  $a^2$
13. (a) 2                      (b) 2                      (c) -1                      (d) 6
14. (a)  $x = 2$  or  $-7$                       (b)  $x = 3$  or  $-3$                       (c)  $x = \frac{1}{3}$  or  $-2$