

You should be able to do all exercises marked with asterisks without using a calculator.

VERSION 1: 5.1: 2(a), 3      5.2: 5      5.3: 1(c), 2(d),(b), 3(a)      5.4: 2(c), 3(a) (just graph the inverse)

5.5: 1(d)\*, 2(f)\*, 3(b)\*, 4(a)\*, 5(b),(f)      6.1: 8      6.2: 1(c), 2, 4(a)

6.3: 1(a)\*, 2(a), 3(a), 6, 10(a), 13(a),(e), 14(e),(f)      6.4: 4(a), 6      6.5: 1(a), 2(b), 3(b),(c)

6.6: 2(b), 7, 11

**Extra Exercise 1:** For  $f(x) = 5x - x^2$  and  $g(x) = 3x + 1$ , find and simplify  $(f \circ g)(x)$ .

VERSION 2: 5.1: 2(b), 4      5.2: 1(b), 4(a)      5.3: 1(d), 2(e),(c)      5.4: 2(d), 3(d) (just graph the inverse)

5.5: 1(a)\*, 2(e)\*, 3(c)\*, 4(b)\*, 5(c),(g)      6.1: 2(a)\*, 6(a),(b)      6.2: 1(a), 5

6.3: 1(b)\*, 3(b), 5(a), 10(b), 13(b),(f), 14(a),(b)      6.4: 1, 11      6.5: 1(b), 2(d), 3(d),(f)

6.6: 2(c), 8, 12

**Extra Exercise 2:** For  $f(x) = x^2 - 2x + 3$  and  $g(x) = x - 5$ , find and simplify  $(f \circ g)(x)$ .

VERSION 3: 5.1: 2(c), 5(a)      5.2: 1(a), 4(b)      5.3: 1(a), 2(f), 3(b)      5.4: 2(a), 3(e) (just graph inverse)

5.5: 1(b)\*, 2(c)\*, 3(d)\*, 4(e)\*, 5(d),(h)      6.1: 2(b)\*, 7(a)      6.2: 3, 8(a)

6.3: 1(c)\*, 2(b), 3(c), 5(b), 10(c), 13(c),(g), 14(c)      6.4: 2      6.5: 2(a),(e), 3(e)

6.6: 10

**Extra Exercise 3:** For  $f(x) = \frac{x+5}{x^2+6x+8}$  and  $g(x) = x+1$ , find and simplify  $(f \circ g)(x)$ .

VERSION 4: 5.1: 1      5.2: 2, 4(c)      5.3: 1(b), 2(a), 3(c)      5.4: 1, 2(b)

5.5: 1(c)\*, 2(d)\*, 3(b)\*, 4(f)\*, 5(a),(e)      6.1: 2(c)\*, 9      6.2: 1(b)

6.3: 1(d)\*, 2(c), 3(c), 7, 10(d), 13(d), 14(d)      6.4: 3      6.5: 1(d), 2(f), 3(a)

6.6: 2(d), 9

### Solutions to Practice Exam Extra Exercises

1.  $(f \circ g)(x) = -9x^2 + 9x + 4$

2.  $(f \circ g)(x) = x^2 - 12x + 38$

3.  $(f \circ g)(x) = \frac{1}{x+3}$