1 (a) Simplify $h^7 \times h^2$

.....

(1)

(Total for Question 1 is 1 marks)

2 (a) Simplify $g^6 \times g^4$

.....

(1)

(b) Simplify $k^{10} \div k^3$

.....

(1)

(c) Simplify $(3cd^4)^2$

.....

(2)

(d) Solve the inequality $4x + 7 > 2$

.....

(2)

(Total for Question 2 is 6 marks)

3 (d) Simplify fully $\frac{n^4 \times n^7}{n^5}$

.....

(2)

(Total for Question 3 is 2 marks)

4 (a) Simplify fully $\dfrac{10x^2 + 23x + 12}{4x^2 - 9}$

.....

(3)

$2^{2y} \times 2^{3y+2} = \dfrac{8^{5y}}{4^n}$

(b) Find an expression for n in terms of y.
Show clear algebraic working and simplify your expression.

.....

(4)

(Total for Question 4 is 7 marks)

5 Express $7 - 12x - 2x^2$ in the form $a + b(x + c)^2$ where a, b and c are integers.

.....

(Total for Question 5 is 3 marks)

6 (a) Simplify $(16e^{10}f^{6})^{\frac{1}{2}}$

.....

(2)

(Total for Question 6 is 2 marks)

7 (a) Simplify $(3k^2)^4$

.....

(2)

(b) Simplify $(21m^4n) \div (3n^{-5})$

.....

(2)

(Total for Question 7 is 4 marks)

8 (a) Simplify $(2x^3y^5)^4$

.....

(2)

(Total for Question 8 is 2 marks)

9 (b) Express $\frac{7}{8} - \frac{x+3}{4x}$ as a single fraction in its simplest form.

.....

(3)

(Total for Question 9 is 3 marks)

10 $a = \dfrac{14}{3x - 7}$ $x = \dfrac{7}{4y - 3}$

Express a in the form $\dfrac{py + q}{ry + s}$ where p, q, r and s are integers.

Give your answer in its simplest form.

$a =$ .....

(Total for Question 10 is 3 marks)

11 $$\frac{18 \times \left(\sqrt{27}\right)^{4n+6}}{6 \times 9^{2n+8}} = 3^x$$

Express x in terms of n
Show your working clearly and simplify your expression.

$x =$ .....

(Total for Question 11 is 3 marks)

12 (b) Simplify $(3a^2b^4)^3$

.....

(2)

(Total for Question 12 is 2 marks)

13 Simplify $\left(x^2 - 4\right) \div \left(\frac{4x^2 - 7x - 2}{x}\right) - 2x$

Give your answer in the form $\frac{ax^2}{bx + c}$ where a, b and c are integers.

.....

(Total for Question 13 is 4 marks)