



1. (a) Simplify $m^3 \times m^6$ m^9
.....
(1)

(b) Simplify $\frac{p^8}{p^2}$ p^6
.....
(1)

(c) Simplify $(2n^3)^4$ $16n^{12}$
.....
(2)

(4 marks)

2. (a) Simplify $m^6 \times m^7$ m^{13}
.....
(1)

(b) Simplify x^0 1
.....
(1)

(c) Simplify $(16y^6)^{\frac{1}{2}}$ $4y^3$
.....
(2)

(4 marks)

3. (a) Simplify $m^5 \div m^3$ m^2
.....
(1)

(b) Simplify $5x^4y^3 \times x^2y$ $5x^6y^4$
.....
(2)

(3 marks)



4. (a) Simplify $a^4 \times a^5$

$$\dots a^9 \dots$$

(1)

(b) Simplify $\frac{45e^6 f^8}{5ef^2}$

$$\dots 9e^5 f^6 \dots$$

(2)

(c) Write down the value of $9^{\frac{1}{2}}$

$$\dots 3 \dots$$

(1)

(4 marks)

5. (a) Simplify $m^2 \times m^4$

$$\dots m^6 \dots$$

(1)

(b) Simplify $y^7 \div y^5$

$$\dots y^2 \dots$$

(1)

(c) Simplify $(m^3)^5$

$$\dots m^{15} \dots$$

(2)

(4 marks)

6. Simplify fully

(a) $p^2 \times p^7$

$$\dots p^9 \dots$$

(1)

(b) $\frac{3q^4 \times 2q^5}{q^3}$

$$\dots 6q^6 \dots$$

(2)

(c) $(2xy^3)^5$

$$\dots 32x^5 y^{15} \dots$$

(2)

(4 marks)

7. (a) Simplify $15y^6 \div 3y^2$

$5y^4$

 (2)

(b) Simplify $7wx^2 \times 3w^3x$

$21w^4x^3$

 (2)

(4 marks)

8. Work out the value of

(a) $(2^2)^3$

64

 (1)

(b) $(\sqrt{3})^2$

3

 (1)

(c) $\sqrt{2^4 \times 9}$

12

 (2)

(d) 4^{-2}

$\frac{1}{16}$

 (1)

(5 marks)

9. (a) Write down the value of $49^{\frac{1}{2}}$

7

 (1)

(b) Simplify

(i) $\frac{x^6}{x^2}$

x^4

(ii) $(y^4)^3$

y^{12}

 (2)

(3 marks)

10. Simplify $\frac{15a^3 b^7}{3a^2 b^3}$

$5ab^4$

(2 marks)

11. $7^5 \times 7^6 = 7^3 \times 7^k$

Find the value of k .

$k = \dots 8 \dots$

(2 marks)

12. (a) Simplify $p^3 \times p^2$

p^5

(1)

(b) Simplify $\frac{q^3 \times q^4 \times q}{q^2}$

q^6

(2)

(3 marks)

13. Find the value of

(i) $36^{\frac{1}{2}}$

6

(ii) 3^{-2}

$\frac{1}{9}$

(2 marks)

14. (a) Write as a power of 7

(i) $7^8 \div 7^3$

7^5
.....

(ii) $\frac{7^2 \times 7^3}{7}$

7^4
.....

(3)

(b) Write down the reciprocal of 2

$\frac{1}{2}$
.....

(1)

(4 marks)

15. (a) Simplify

$12y^3 \div 3y^5$

$4y^{-2}$
.....

(2)

(b) Simplify

$2w^3x^2 \times 3w^4x$

$6w^7x^3$
.....

(2)

(4 marks)

16. (a) Work out the value of

(i) 4^2

16
.....

(ii) $\sqrt{64}$

8
.....

(iii) 3×2^3

24
.....

(3 marks)



17. Simplify

(i) $x^4 \times x^5$

x^9

(ii) $\frac{p^8}{p^3}$

p^5

(iii) $3s^2t^3 \times 4s^4t^2$

$12s^6t^5$

(iv) $(q^3)^4$

q^{12}

(6 marks)

18. Simplify fully

(i) $(p^3)^3$

p^9

(ii) $\frac{3q^4 \times 2q^5}{q^3}$

$6q^6$

(4 marks)

19. Work out

(i) 4^0

1

(ii) 4^{-2}

$\frac{1}{16}$

(iii) $16^{\frac{3}{2}}$

64

(4 marks)

20. (a) Find the value of

(i) 64^0

..... 1

(ii) $64^{\frac{1}{2}}$

..... 8

(iii) $64^{-\frac{2}{3}}$

..... $\frac{1}{16}$

(4 marks)