

QT Indices



1. Simplify $x^5 \times x^4$

$$x^9$$

(1 mark)

$x \times x \times x \times x \times x \times x \times x \times x \times x \times x \times x$

2. Simplify $y^7 \times y^2$

$$y^9$$

(1 mark)

3. Simplify $z^2 \times z^6$

$$z^8$$

(1 mark)

4. Simplify $a^4 \times a^4$

$$a^8$$

(1 mark)

5. Simplify $x^8 \div x^4$

$$x^4$$

$x + x + x + x + x + x + x + x$ (1 mark)
 ~~$x + x + x + x$~~

6. Simplify $y^7 \div y^2$

$$y^5$$

(1 mark)

7. Simplify $z^6 \div z^5$

$$z^1 = z$$

(1 mark)

8. Simplify $a^4 \div a^4$

$$a^4 / a^4 = 1$$

(1 mark)

9. Simplify $(3x)^3$

$$3x \times 3x \times 3x$$

$$\underline{27x^3}$$

(1 mark)

10. Simplify $(4a)^2$

$$4a \times 4a$$

$$\underline{16a^2}$$

(1 mark)

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11. Simplify $(5b)^3$

$$= 125b^3$$

(1 mark)

12. Simplify $(3c)^4$

$$= 81c^4$$

(1 mark)

13. Simplify $(4bd)^3$

$$64b^3d^3$$

(2 marks)

14. Simplify $(3x^2y)^3$

$$27x^6y^3$$

(2 marks)

15. Simplify $(2a^3b^2)^3$

$$8a^9b^6$$

(2 marks)

16. Simplify $(3^3)^3$

$$3^9$$

(2 marks)

17. Simplify $2x^2 \times 5y^4$

$$10x^2y^4$$

(2 marks)

18. Simplify $3a^3 \times 7b^5$

$$21a^3b^5$$

(2 marks)

19. Simplify $4c^5 \times 4c^5$

$$16c^{10}$$

(2 marks)

20. Simplify $25x^4 \div 5x^2$

$$\frac{25x^4}{5x^2} = 5x^2$$

(2 marks)

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21. Simplify $15m^4 \div 3n^4$

$$\frac{15m^4}{3n^4} = \frac{5m^4}{n^4}$$

(2 marks)

22. $100^x = 1$ Write down the value of x .

$$x = 0$$

(1 mark)

$$42^0 = 1 \quad 157^0 = 1$$

23. Write $4^3 \times 4^2$ as a power of 4.

$$4^5$$

(1 mark)

24. Write $\frac{4^3 \times 4^6}{4^2}$ as a power of 4

$$\frac{4^9}{4^2} = 4^7$$

(2 marks)

25. Work out the value of $\frac{3^6 \times 3^{-2}}{3^4}$

$$= \frac{3^4}{3^4} = 1$$

(2 marks)

26. Simplify $\frac{16a^8b^3}{4a^3b}$

$$= 4a^5b^2$$

(2 marks)

27. Simplify $\frac{12x^2y^6}{3xy^4}$

$$4xy^2$$

(2 marks)

28. Work out the value of $(2^2)^3$

$$= 2^6$$

(2 marks)

$$= 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$= \underline{\underline{64}}$$

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29. Write the value of 5^{-3} $\frac{1}{5^3} = \frac{1}{125}$ (2 marks)

30. Write the value of 4^{-2} $\frac{1}{4^2} = \frac{1}{16}$ (2 marks)

31. Write the value of 6^{-3} $\frac{1}{6^3} = \frac{1}{216}$ (2 marks)

32. Write the value of $4^2 \times 2^3$ $16 \times 8 = 128$ (2 marks)

33. $5^4 \times 5^x = 5^{12}$ Find the value of x . (1 mark)
 $5^4 \times 5^8 = 5^{12} \quad \therefore x = 8$

34. $6^9 \div 6^x = 6^2$ Find the value of x . (1 mark)
 $\frac{6^9}{6^7} = 6^2 \quad \therefore x = 7$

35. $\frac{4^9 \times 4^5}{4^3} = 4^x \times 4^4$ Find the value of x . (2 marks)
 $\frac{4^9}{4^3} = 4^x$ $4^6 = 4^x \times 4^4$
 $= 4^6 \times 4^4$
 $\therefore x = 7$

Total / 54 marks