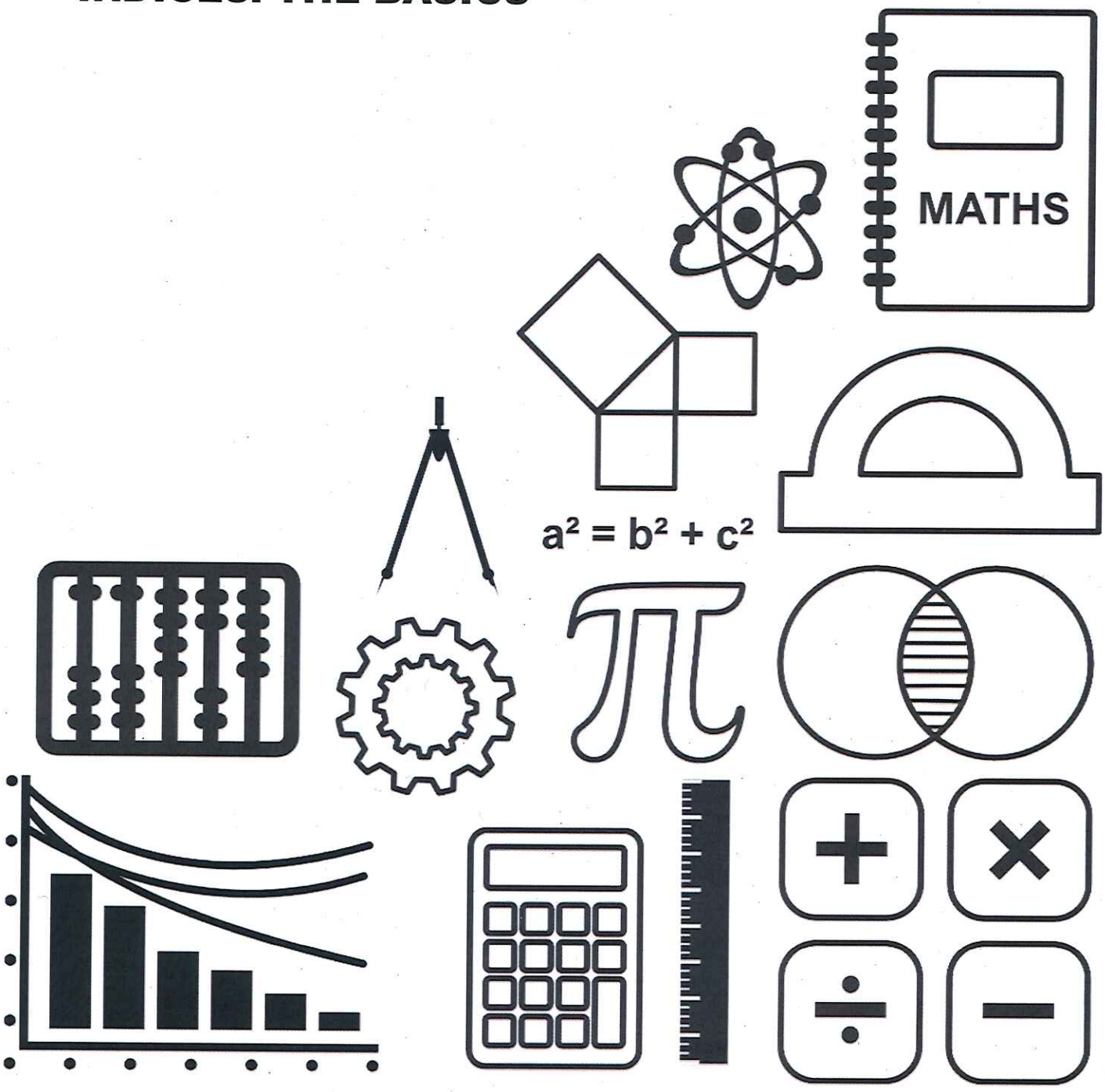
MATHSDIY

SOLUTIONS

GCSE TOPIC BOOKLET
INDICES: THE BASICS



1. Find the value of

2^3

$= 2 \times 2 \times 2 = 8$

(1)

2. Find the value of

$\sqrt{9}$

$= 3$

(1)

3. Find the value of

$2^3 \times 3^2$

$= 2 \times 2 \times 2 \times 3 \times 3 = 8 \times 9 = 72$

(1)

4. Find the value of

$3^7 \div 3^5$

$= 3^2 = 9$

(1)

5. Find the value of

7^0

$= 1$

(1)

6. Find the value of $\sqrt{16}$

$= 4$

(1)

7. Find the value of

$2^3 \times 5^2$

$= 2 \times 2 \times 2 \times 5 \times 5 = 8 \times 25 = 200$

(1)

8. Find the value of

$5^4 \div 5^2$

$= 5^2 = 25$

(1)

9. Find the value of

6^2

$= 6 \times 6 = 36$

(1)

10. Find the value of $\sqrt{81}$

$= 9$

(1)

11. Find the value of

$4^2 \times 2^2$

$= 4 \times 4 \times 2 \times 2 = 16 \times 4 = 64$

(1)

12. Find the value of

$8^3 \div 8^2$

$= 8$

(1)

13. Write down the square root of 64.

$= 8$ (because $8 \times 8 = 64$)

(1)

14. Write down the cube root of 8.

$= 2$ (because $2 \times 2 \times 2 = 8$)

(1)

15. Simplify $(\sqrt{9})^2$

$= 3^2 = 9$

(1)

16. Simplify $m^4 \div m^2$

$= m^2$

(1)

17. What whole number is nearest to the value of $\sqrt{27}$?

$\sqrt{25} = 5$ $\sqrt{36} = 6$ so 5

(1)

18. What whole number is nearest to the value of $\sqrt{101}$?

$\sqrt{100} = 10$ $\sqrt{121} = 11$ so 10

(1)

19. Evaluate

$(\sqrt{4})^5$

$= 2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$

(1)

20. Using only numbers between 20 and 30 inclusive, write down

a) a square number

25 (because $5 \times 5 = 25$)

b) a cube number

27 (because $3 \times 3 \times 3 = 27$)

(2)

21. Write down the square root of 121.

11

(1)

22. Write down the cube root of 125.

5 (because $5 \times 5 \times 5 = 125$)

(1)

23. Evaluate

$\sqrt{144} \times \sqrt{9}$

$= 12 \times 3 = 36$

(2)

24. Simplify

$2m^3 \times 5m^2$

$= 2 \times 5 \times m^3 \times m^2 = 10 \times m^5 = 10m^5$

(2)

25. Arrange these in ascending order.

$\sqrt{100}$ $\quad 3^2$ $\quad \sqrt{25} \times 2^2$ $\quad (\sqrt{4})^3$

$10 \quad 9 \quad 5 \times 4 = 20 \quad 2^3 = 8$

$(\sqrt{4})^3 \quad 3^2 \quad \sqrt{100} \quad \sqrt{25} \times 2^2$

(2)

26. Simplify

$4n^3 \times 3n^2$

$= 4 \times 3 \times n^3 \times n^2 = 12 \times n^5 = 12n^5$

(2)

27. Simplify

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

$= 9w^6$

(2)

28. Simplify

$(3m)^4$

$= 3m \times 3m \times 3m \times 3m = 81m^4$

(2)

29. Simplify

t^0

$= 1$

(1)

30. Simplify

$4x^5 \div 2x^2$

$= 2x^3$

(2)

31. Simplify

$16x^6 \div 8x^4$

$= 2x^2$

(2)

32. Simplify

$14y^4 \div 2y^2$

$= 7y^2$

(2)

33. Simplify

$2m^2n^3 \times 5m^2n^2$

$= 10m^4n^5$

(2)