

STANDARD FORM AND INDICES YEARS 9 AND 10

1 $4x^0$ is equal to:

- A 1
C 40
B 4
D the expression cannot be evaluated unless x is specified.

2 $2ab^5$ means:

- A $2 \times a \times b \times b \times b \times b \times b$
C $2a \times 2b^5$
B $10 \times a \times b$
D $2ab \times 2ab \times 2ab \times 2ab \times 2ab$

3 The basic numeral for 2^{-3} is:

- A -6
B -8
C $\frac{1}{8}$
D $\frac{1}{6}$

4 $(2a^3)^4$ is equal to:

- A $8a^{12}$
B $2a^{12}$
C $16a^{12}$
D $212a^{12}$

5 540 000 000, when expressed in standard form, is equal to:

- A 5.4×10^7
C 54×10^7
B 5.4×10^8
D 5.4×10^{-8}

6 $ab^{-5}c^3$ is equal to:

- A $\frac{1}{ab^5c^3}$
B $\frac{b^5}{ac^3}$
C $\frac{c^3}{ab^5}$
D $\frac{ac^3}{b^5}$

7 The basic numeral for 2.33×10^{-4} is:

- A $\frac{1}{23\,300}$
B 23 300
C 0.000 023 3
D 0.000 233

8 $\frac{a^4}{3b^{-2}}$ is equal to:

- A $\frac{a^4b^2}{3}$
B $\frac{3b^2}{a^4}$
C $\frac{ab^6}{3}$
D $3a^4b^2$

- 9 When expressed with positive indices, $\frac{a^6 b^7}{a^3 b^{-7}}$ is equal to:
- 10 $(4a^{-6})^{-2}$ is equal to:
- 11 $\sqrt{x^{-16}}$ is equal to:
- 12 The basic numeral for $9^{\frac{1}{2}}$ is:
- 13 $m^{-2} n^7 p^4 \times m^2 n^{-9} p$ is equal to:
- 14 When expressed in simplest form with positive indices, $\frac{a^5}{b^4} \div \frac{b^4}{a^3}$ is:
- 15 $\frac{30a^6 bc^4}{6a^6 b^2 c^8}$ is equal to:
- 16 0.000 010 2 written in standard form is:
- 17 If a spacecraft travelled at 2×10^4 kph from the Earth to the Moon, which is a distance of 4×10^5 km, the time it would take is:
- A a^2 B a^3 C $a^2 b^{14}$ D $a^3 b^{14}$
- A $-8a^{12}$ B $\frac{a^{12}}{16}$ C $-\frac{8}{a^8}$ D $4a^{12}$
- A $\frac{1}{x^4}$ B $\frac{1}{x^8}$ C $-x^4$ D $-x^8$
- A $4 \frac{1}{2}$ B 3 C $\frac{1}{81}$ D -3
- A $\frac{p^5}{n^2}$ B $\frac{p^4}{n^2}$ C $\frac{mp^5}{n^2}$ D $\frac{mp^4}{n^2}$
- A a^2 B a^8 C $\frac{a^8}{b^8}$ D $\frac{a}{b}$
- A $\frac{24a}{bc^4}$ B $\frac{24}{bc^2}$ C $\frac{5}{bc^2}$ D $\frac{5}{bc^4}$
- A 1.02×10^{-5} B 1.02×10^{-4}
 C 1.02×10^5 D 1.2×10^{-5}
- A 20 hours B 80 hours C 6×10^9 hours D 8×10^9 hours

18 $\frac{9 \times 10^{24} \times 6 \times 10^{-12}}{12 \times 10^{10}}$ is equal to:

A 3×10^2

B 4.5×10^2

C 3×10^{22}

D 4×10^{22}

19 $\sqrt{2^{-6}}$ is equal to:

A 1^{-6}

B 1^{-3}

C $\frac{1}{2^3}$

D You can't find the square root of a negative number.

20 $125^{\frac{2}{3}}$ is equal to:

A 25

B $83\frac{1}{3}$

C $\frac{1}{125}$

D 10

THE NEXT 2 QUESTIONS REFER TO THE FOLLOWING INFORMATION.

The diameter of a red blood cell is about 8×10^{-5} cm.

21 If an artery could accommodate about 4 000 of these cells across its width, its diameter would be approximately.

A 0.000 02 cm

B 0.005 cm

C 0.02 cm

D 0.32 cm

22 The number of red blood cells which will fit into a line exactly 1 metre long is:

A 1.25×10^{-4}

B 1.25×10^8

C 1.25^6

D 1.25×10^6

23 The basic numeral for $2^{-2} + 3^{-1}$ is:

A $\frac{1}{125}$

B $\frac{1}{7}$

C $\frac{7}{12}$

D -7

24 The basic numeral for $\frac{(2^{x+1})^4}{4^{2x}}$ is:

A 2

B 8

C 16

D Unable to be determined unless the value of x is known.

ANSWERS TO STANDARD FORM AND INDICES

1	B	2	A	3	C	4	C	5	B	6	D
7	D	8	A	9	D	10	B	11	B	12	B
13	A	14	C	15	D	16	A	17	A	18	B
19	C	20	A	21	D	22	D	23	C	24	C
25	B	26	B	27	C	28	C	29	A	30	B