REVISION: INDICES

Paper 1
Answer ALL the questions.
The diagrams accompanying the questions are not drawn to scale unless mentioned.
You are allowed to use a scientific calculator that cannot be programmed.

1 5^{-2} can also be written as

A 25^{-1}

B $\frac{1}{25}$

C $\frac{1}{5^{-2}}$

D 25

2 Simplify $2^5 \times 2^{-6} \times \frac{1}{2^3}$.

A $\frac{1}{16}$

B 8

C 8^{-4}

D 16

3 If $x^{-3} = 27$, then $x =$

A 3

B 3^3

C 3^{-2}

D $\frac{1}{3}$

4 Simplify $y^6 \times y^3 \times y^{-2} \times y^{-7}$.

A 0

B 1

C y

D y^2

LIVEWORKSHEETS

5 Simplify $t^4 \times t^{-3} \times (t^{-9})^{\frac{1}{3}}$.

A $\frac{1}{t^3}$

B $\frac{1}{t}$

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

D t

6 Determine the value of $(64)^{\frac{-2}{3}}$.

A $\frac{1}{8}$

B $\frac{1}{4}$

C $\frac{1}{16}$

D $\frac{1}{64}$

7 What is the value of $8^{\frac{1}{3}} \div 32^{\frac{1}{5}}$?

A 0

B 1

C 2

D 3

8 Simplify $5^{-1} + 5^2 + 5^{-2}$.

A $5\frac{6}{25}$

B $10\frac{6}{25}$

C $15\frac{6}{25}$

D $25\frac{6}{25}$

LIVEWORKSHEETS

9 If $y^3 \times y^{-4} \div y^{-2} = 7$, find the value of y.

A 7

B 70

C $\frac{1}{7}$

D $\frac{1}{49}$

10 Simplify $\frac{t^{10}}{t^{-4} \times t^{-8}}$.

A $\frac{1}{t^2}$

B $\frac{1}{t^{22}}$

C t^{22}

D t^2

11 Simplify $(p^2 s^5)^2 \times (p^{-3} s^4)^{-1}$.

A $p^6 s^6$

B $p^7 s^6$

C $p^6 s^7$

D $p^7 s^7$

12 Simplify $(a^2 b^2 c^2)^3 \times (\frac{1}{abc})^{-2}$.

A $a^8 b^8 c^8$

B $a^6 b^6 c^6$

C $a^{12} b^{12} c^{12}$

D $a^4 b^4 c^4$

13 $(p^{-2} s^{-2})^{-2}$ can also be written as

A $\frac{1}{p^4 s^4}$

B $p^{-4} s$

C $p^4 s^4$

D $p^{-4} s^{-4}$

LIVEWORKSHEETS

14 Find the value of $(\frac{a^2}{b^3})^{-m}$, if $a = 2$, $b = 3$, and $m = 2$.

A $\frac{8}{27}$

B $\frac{1}{8}$

C $\frac{1}{27}$

D $\frac{729}{16}$

15 Simplify $3p^{-3} \times (p^7 \div p^2 \times \frac{1}{p^5} \times p^3)$.

A $3p^4$

B $3p^3$

C $3p^2$

D $3p$

16 Simplify $(4m^6)^{\frac{1}{2}} \times (27m^3)^{\frac{2}{3}}$.

A $\frac{1}{18m^5}$

B m

C $18m^5$

D $28m$

17 Which of the following is **not** equal to 3?

A $\frac{1}{3^{-1}}$

B $3^{-3} \times 3^4$

C $3^{-2} \times 3^{-3}$

D $(\frac{1}{3})^{-1}$

LIVEWORKSHEETS

18 Which of the following is **not** an answer for $(\frac{1}{8})^{-1}$?

A 2^3

B $2^2 \times \frac{1}{2^{-1}}$

C $2^{-2} \div 2^{-5}$

D $\frac{2^{-3}}{2^2}$

19 Which of the following, is **not** equal to 1?

A $\frac{4^{-1}}{4^{-1}}$

B $4^{-1} \times 4$

C $\frac{1}{4} \times 4^{-1}$

D $(4^{-1})^0$

20 Solve $(p^{-2})^{-2} = 81^{-1}$.

A $\frac{1}{3}$

B 3

C $\frac{1}{9}$

D $\frac{1}{27}$

LIVEWORKSHEETS