



INDICES

MULTIPLYING INDICES

NO CALCULATOR

Ref: G221. **1E1**

<p>A1 Find the missing expression:</p> $a^2 \times \square = a^5$	<p>A2 Find the missing expression:</p> $\square \times a^3 = a^8$	<p>A3 Find the missing expression:</p> $a^6 \times \square = a^3 \times a^7$	<p>A4 Find the missing expression:</p> $a^5 \times a^4 = \square \times a^3$
<p>B1 Find the missing expression:</p> $a^5 \times a^2 \times \square = a^{11}$	<p>B2 Find the missing expression:</p> $3a^2 \times \square \times a = 12a^9$	<p>B3 Find the missing expression:</p> $a^2 \times \square \times 3a^2b = 15a^9b^4$	<p>B4 Find the missing expression:</p> $6a^5 \times 3a^3 = 2a^7 \times \square$
<p>C1 Find the value of n.</p> $a^4 \times a^n = a^7$	<p>C2 Find the value of n.</p> $a^5 \times a^{n+1} = a^{13}$	<p>C3 Find the value of n.</p> $a^{2n} \times a^3 = a^{11}$	<p>C4 Find the value of n.</p> $a^{2n} \times a^n \times a^2 = a^{17}$
<p>D1 Find the value of p and of q.</p> $pa^5 \times 3a^p = 6a^q$	<p>D2 Find the value of p and of q.</p> $pa^p \times pa^7 = qa^{11}$	<p>D3 Find the value of p and of q.</p> $pa^7 \times 4a^q = qa^{12} \times 2a^p$	<p>D4 Find the value of p and of q.</p> $pa^{3p} \times qa^3 = 2a^q \times 3pa^q$
<p>E1 Find the missing expression</p> $\left(\square\right)^3 = 8x^6$	<p>E2 Explain the result of:</p> $n^4 \times n^0$	<p>E3 Which has the larger value:</p> $a^b \text{ or } b^a$ <p>Explain your answer.</p>	<p>E4 Given that</p> $(3a)^3 \times (2b)^2 = 162(ab)^2$ <p>Find the value of a.</p>



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A1 Find the missing expression: $a^2 \times \boxed{a^3} = a^5$	A2 Find the missing expression: $\boxed{a^5} \times a^3 = a^8$	A3 Find the missing expression: $a^6 \times \boxed{a^4} = a^3 \times a^7$	A4 Find the missing expression: $a^5 \times a^4 = \boxed{a^6} \times a^3$
B1 Find the missing expression: $a^5 \times a^2 \times \boxed{a^4} = a^{11}$	B2 Find the missing expression: $3a^2 \times \boxed{4a^6} \times a = 12a^9$	B3 Find the missing expression: $a^2 \times \boxed{5a^5b^3} \times 3a^2b = 15a^9b^4$	B4 Find the missing expression: $6a^5 \times 3a^3 = 2a^7 \times \boxed{9a}$
C1 Find the value of n . $a^4 \times a^n = a^7$ $4 + n = 7$ $n = 3$	C2 Find the value of n . $a^5 \times a^{n+1} = a^{13}$ $5 + n + 1 = 13$ $n = 7$	C3 Find the value of n . $a^{2n} \times a^3 = a^{11}$ $2n + 3 = 11$ $n = 4$	C4 Find the value of n . $a^{2n} \times a^n \times a^2 = a^{17}$ $3n + 2 = 17$ $n = 5$
D1 Find the value of p and of q . $\underline{p}a^5 \times \underline{3}a^p = \underline{6}a^q$ $3p = 6$ $5 + 2 = q$ $p = 2$ $q = 7$	D2 Find the value of p and of q . $\underline{p}a^7 \times \underline{p}a^7 = \underline{q}a^{11}$ $p + 7 = 11$ $4^2 = q$ $p = 4$ $q = 16$	D3 Find the value of p and of q . $\underline{p}a^7 \times \underline{4}a^q = \underline{q}a^{12} \times \underline{2}a^p$ $7 + q = 12 + p$ $4p = 2q$ $\Rightarrow q = 5 + p$ $4p = 2(5 + p)$ $p = 5$ $q = 10$	D4 Find the value of p and of q . $\underline{p}a^{3p} \times \underline{q}a^3 = \underline{2}a^q \times \underline{3}pa^q$ $pq = 6p$ $3p + 3 = 12$ $\Rightarrow q = 6$ $\Rightarrow p = 3$
E1 Find the missing expression $(2x^2)^3 = 8x^6$	E2 Explain the result of: $n^4 \times n^0 = n^4$ The result is n^4 because $n^0 = 1$	E3 Which has the larger value: a^b or b^a It depends See the following examples: $2^3 = 8$ $2^4 = 16$ $2^5 = 32$ $3^2 = 9$ $4^2 = 16$ $5^2 = 25$	E4 Given that $(3a)^3 \times (2b)^2 = 162(ab)^2$ $27a^3 \times 4b^2 = 162a^2b^2$ $108a \times a^2b^2 = 162a^2b^2$ $108a = 162 \Rightarrow a = 1.5$