

Maths Workout - Algebra & Problem Solving

Topic 23 - Indices 2				
Target 1	Target 2	Target 3	Target 4	Target 5
<i>Know and apply the rules of indices to numerical expressions</i>	<i>Know and apply the rules of indices to algebraic expressions</i>	<i>Know and apply the rules of indices to numerical and algebraic expressions</i>	<i>Convert between fractional indices and surds, and evaluate expressions</i> <i>Solve equations involving indices</i>	<i>Evaluate and simplify expressions in index form</i> <i>Solve equations involving indices</i>
1. Write a numerical or algebraic expression in index form $3 \times 3 \times 3 \times 3 = 3^4$; $t \times t \times t = t^3$	1. Simplify an expression in index form: $3a^2 \times 6a^3 = 18a^5$	1. Simplify an expression in index form and evaluate: $9a^2 \times 4b^3 \times a^4$	1. Express surd form as positive fractional index form	1. Complete missing elements when evaluating expressions in index form
2. Evaluate an expression in index form: $4^3 = 64$	2. Speed response: Identify an expression in index form and its matching simplified form	2. Simplify an expression in index form and evaluate: $9^2 \times 9^3 / 9^4 = 9$	2. Express positive fractional index form as a surd	2. Evaluate a numerical expression with fractional indices
3. Speed response: Identify a value and its matching index form	3. Simplify an expression in index form and evaluate: $3^2 / 3^3 = 3^{-1} = 1/3$	3. Simplify an algebraic expression in index form: $6k^2 \times 3k^3 / 2k = 9k^4$	3. Express positive fractional index form as a surd and evaluate	3. Evaluate a unitary fraction raised to an index
4. Speed response: Identify the greater of 2 numerical expressions in index form: $2^3 > 3^2$	4. Speed response: Identify a division expression in index form and its matching expanded form	4. Simplify an algebraic expression in index form with more than one variable: $6j^2k^3 \times 3k^2 / 2k = 9j^2k^4$	4. Express surds in denominators as negative fractional index form	4. Evaluate a fraction raised to an index
	5. Simplify an algebraic expression using positive indices: $6k^2 / 2k^3 = 3/k$	5. Simplify and evaluate an expression of the form $(4^2)^3$	5. Express negative fractional index form as a surd and evaluate	5. Simplify an algebraic expression containing fractional indices
	6. Speed response: Simplify a division expression: $k^2 / k^3 = k^{-1}$	6. Simplify an algebraic expression in index form: $(x^2)^3 = x^6, (2x^2)^4 = 16x^8$	6. Evaluate expressions in index form	6. Solve equations with whole indices
		7. Speed response: (balls) Identify an expression in index form and its matching expanded form: $(x^2)^3 = x^6$		7. Solve equations with fractional indices
		8. Speed Response: True or False: $(x^2)^3 = x^6, (2x^2)^3 = 8x^6$		