Indices and Roots Maze **Short activity**

Starting from 2^6 find a route to the opposite side of the rectangle so that each value you land on is equivalent to 2^6.

You may only move one space horizontally or vertically each time – no diagonal moves allowed!

2^6x2^3	3^2x2^3	$(\sqrt{16})^2$	$(2^3)^3$	$8^3\div8$	4^4x4^{-3}	$(\sqrt[3]{8})^4$	$8x4^2$
$\sqrt{8^3}$	$(2^3)^2$	8^7x8^{-5}	4^3	$2^{-2}x2^7$	64^0	2^5x2^3	$4^7\div2^3$
$(\sqrt{64})^3$	8^2	2^2x2^3	2^3x2^3	$(2^3)^3$	$(\sqrt[3]{8})^6$	4^6x4^{-3}	2^2x4^2
2^6	$(\sqrt{64})^2$	4^6x4^{-2}	$(\sqrt{16})^3$	$(2^2)^4$	$8^3\div2^3$	$2^{-3}x2^7$	$(2^2)^4$
3^5	2^6x2^1	8^3	$4^5\div2^4$	$(-4)^{-3}$	$(2^2)^3$	$(\sqrt{8})^3$	$4^6\div2^6$
4^3x4^{-3}	$(2^5)^1$	$(\sqrt[3]{64})^2$	2^3x8	$2^{-1}x2^7$	$(\frac{1}{4})^{-3}$	16^2	64

Indices and Roots Maze **Short activity**

Teacher notes

Content: Evaluating surds

Possible uses:

- As an extension task for more able pupils: e.g. if they haven't yet encountered a negative index
- As a task to identify misconceptions: some common misconceptions are targeted and will lead to an incorrect route
- As a consolidation task

Resource options:

- PowerPoint file for whole class projection
- Worksheet for individual pupils

Answers

	$(2^3)^2$	$8^7 \times 8^{-5}$	4^3				
	8^2		$2^3 \times 2^3$		$(\sqrt[3]{8})^6$	$4^6 \times 4^{-3}$	$2^2 \times 4^2$
2^6	$(\sqrt{64})^2$		$(\sqrt{16})^3$		$8^3 \div 2^3$		
			$4^5 \div 2^4$		$(2^2)^3$		
			$2^3 \times 8$	$2^{-1} \times 2^7$	$(\frac{1}{4})^{-3}$		

NB there are a few other expressions on the grid that are also equivalent to 2^6 but none are connected to the route as a 'legal' move.