

Lesson 2: Indices and Powers

Aim: Indices and Powers

Resources:

- Indices PowerPoint
- Indices worksheet
- Indices game PowerPoint

Starter (5 minutes)

Use the first slide of Indices to motivate discussion on negative powers, power of 1 and power of 0.

Copy and complete the list of powers...what do you notice about negative powers?

$5^4 =$	625	}	÷
$5^3 =$	125		
$5^2 =$	25	}	÷
$5^1 =$			
$5^0 =$			
$5^{-1} =$			
$5^{-2} =$			
$5^{-3} =$			

Activity 1 (5 minutes)

Use slide 2 to discuss rules for negative indices and dividing terms.

$$\frac{1}{x^5} = x^{\quad}$$

$$x^{-5} = \quad$$

$$x^{\quad} \div x^9 = \quad$$

$$\frac{30x^{\quad}}{6x^9} = \quad$$

Activity 2 (10 minutes)

Using the examples on slide 3, ask students (using mini-whiteboards) to find values of r, s, p, q to make the equations true.

1	$x^p \times x^q = x^6$
2	$x^p \times x^q = 1$
3	$px^q = 0$
4	$px^q = 1$
5	$rx^p \times sx^q = 5x^3$
6	$x^p \div x^q = x^3$
7	
8	

Worksheet (15 to 20 minutes)

Students work through the Indices worksheet

Plenary: Indices game PowerPoint

Students play against the teacher. They write down values that will satisfy each equation. If the value they choose is different to the one the teacher writes (use your own mini-whiteboard) the student gains a point.