1. Use a calculator to work out the missing powers:

|  |  |  |  |
| --- | --- | --- | --- |
| 32 = 22 × 2? | 729 = 34 × 3? | 4096 = 4? × 42 | 78125 = 55 × 5? |

|  |  |  |  |
| --- | --- | --- | --- |
| 4 = 210 ÷ 2? | 243 = 38 ÷ 3? | 256 = 4? ÷ 45 | 625 = 54 ÷ 5? |

2. Work out the missing numbers in these calculations:

|  |  |  |  |
| --- | --- | --- | --- |
| 24 × 27 = ? = 2? | 32 × 36 = ? = 3? | 45 × 43 = ? = 4? | 53 × 54 = ? = 5? |

|  |  |  |  |
| --- | --- | --- | --- |
| 28 ÷ 25 = ? = 2? | 37 ÷ 33 = ? = 3? | 46 ÷ 41 = ? = 4? | 53 ÷ 54 = ? = 5? |

3. Explain how to find the missing powers in questions 1 and 2.

4. Find three different calculations which have each of the following as an answer. Each calculation should involve finding the product of two numbers written in index form.

a. 729

b. 128

c. 1024

d. 3125

e. 2592

5. Repeat question 4, but this time find division calculations with the answer:

6. Investigate ab × ac and ab ÷ ac for negative values of b and c. Do the numbers behave as you would expect them to?