# Maths skills – M0.5 Use calculators to find and use power, exponential and logarithm functions

## Teacher answers

### Quiz

1. Use your calculator to determine the value of:
2. 123
3. 105
4. Log (4)
5. Ln(7)
6. 1728
7. 100,000
8. 0.602
9. 1.946

1. A bacterial cell divides (doubles) every 45 minutes under standard conditions. There is initially one bacterium in the culture. How many cells will there be after 6 hours?

6 hours = 360 minutes

360/45 = 8 divisions

$N=N\_{0}×2^{n}$ = 1 x 28 = 256 bacterial cells

1. A bacterial cell divides (doubles) every 35 minutes under standard conditions. There is initially one bacterium in the culture. How many cells will there be after 8 hours?

8 hours = 480 minutes 480/35 = 13.7 divisions

Since divisions will not be strictly synchronous students might legitimately use 13.7 or reason that only 13 complete divisions have occurred

$N=N\_{0}×2^{n}$ = 1 x 213.7 = 13308 bacterial cells = 1.3 x 104 bacterial cells

$N=N\_{0}×2^{n}$ = 1 x 213 = 8192 bacterial cells = 8.2 x 103 bacterial cells

### Produced in collaboration with the University of East Anglia

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