

## Powers and Roots Past Paper Questions (MS)



Q1.

| Question | Working | Answer                  | Mark | Notes  |
|----------|---------|-------------------------|------|--|
| (a)      |         | 64                      | 1    | B1 cao   |
| (b)      |         | 1000                    | 1    | B1 for 1000 or one thousand  |
| (c)      |         | $4 < \text{answer} < 5$ | 1    | B1 for $4 < \text{"answer for } \sqrt{20} < 5$<br>[accept answer in words, eg. "greater than 4 and less than 5"] |

Q2.

| Question | Working | Answer | Mark | Notes    |
|----------|---------|--------|------|----------|
| (a)      |         | 49     | 1    | B1 cao   |
| (b)      |         | 5      | 1    | B1 for 5 |
| (c)      |         | 8      | 1    | B1 cao   |

Q3.

| Paper 1MA1: 1F |         |        |        |       |
|----------------|---------|--------|--------|-------|
| Question       | Working | Answer | Mark   | Notes |
|                |         | -27    | B1 cao |       |

Q4.

| Question | Working | Answer | Notes  |
|----------|---------|--------|--------|
|          |         | 625    | B1 cao |

Q5.

| Paper 1MA1: 3F |         |        |        |       |
|----------------|---------|--------|--------|-------|
| Question       | Working | Answer | Mark   | Notes |
| (a)            |         | 7      | B1 cao |       |
| (b)            |         | 256    | B1 cao |       |



Q6.

| Question | Working | Answer | Mark | Notes  |
|----------|---------|--------|------|--|
| (a)      |         | 9      | 1    | B1 cao   |
| (b)      |         | 33     | 2    | M1 for $5 \times 5$ or 25 seen in the working<br>or $2 \times 2 \times 2$ or 8 seen in the working<br>A1 cao |

Q7.

|     | Working | Answer | Mark | Notes          |
|-----|---------|--------|------|----------------|
| (a) |         | 7      | 1    | B1 for 7 or -7 |
| (b) |         | 27     | 1    | B1 cao         |

Q8.

| Question | Working | Answer | Mark | Notes |
|----------|---------|--------|------|-------|
|          |         | 16     | B1   | cao   |

Q9.

| Paper 1MA1:3F |         |                   |   |
|---------------|---------|-------------------|---|
| Question      | Working | Answer            | Notes   |
|               |         | Yes with evidence | C1 for writing down at least two squares numbers<br>P1 for adding square numbers<br>A1 cao with supporting evidence |

Q10.

| Question | Working | Answer | Mark | Notes |
|----------|---------|--------|------|-------|
|          |         | 16     | B1   | cao   |

Q11.

| Question | Answer     | Mark | Mark scheme  | Additional guidance |
|----------|------------|------|--|---------------------|
|          | odd square | B1   | stating an odd square number eg 1, 9, 25, 49, 81, etc. |                     |



Q12.

| Question | Answer | Mark | Mark scheme | Additional guidance |
|----------|--------|------|-------------|---------------------|
|          | 4      | B1   | cao         |                     |

Q13.

| Question | Answer | Mark | Mark scheme | Additional guidance |
|----------|--------|------|-------------|---------------------|
| (a)      | 8      | B1   | cao         |                     |
| (b)      | 125    | B1   | cao         |                     |

Q14.

| Question | Answer | Mark | Mark scheme | Additional guidance                               |
|----------|--------|------|-------------|---|
|          | 9, 27  | B1   | cao         | Do not award the mark if other numbers are shown. |

Q15.

| Question | Answer | Mark | Mark scheme | Additional guidance |
|----------|--------|------|-------------|---------------------|
|          | 6.25   | B1   | for 6.25 oe |                     |

Q16.

| Question | Answer | Mark | Mark scheme | Additional guidance |
|----------|--------|------|-------------|---------------------|
|          | 27     | B1   | cao         |                     |

Q17.

| Question | Answer | Mark | Mark scheme | Additional guidance |
|----------|--------|------|-------------|---------------------|
|          | 9      | B1   | cao         |                     |

Q18.

| 5MB2F_01 November 2015 |                             |                         |      |  |  |
|------------------------|-----------------------------|-------------------------|------|--|--|
| Question               | Working                     | Answer                  | Mark | Notes  |  |
|                        | 1, 4, 9, 16, 25<br>1, 8, 27 | Liz 25,<br>Howard<br>27 | 2    | M1 for a list of at least 2 square numbers or at least 2 cube numbers identified with no ambiguity or Liz and Howard's ages reversed<br>A1 cao |  |



Q19.

| Paper 1MA1: 3F |         |        |       |
|----------------|---------|--------|-------|
| Question       | Working | Answer | Notes |
| (i)            |         | 17     | B1    |
| (ii)           | 1       | 16     | B1    |

Q20.

| Question | Working | Answer | Mark | Notes  |
|----------|---------|--------|------|--------|
| (a)      |         | 2.7    | 1    | B1 cao |
| (b)      |         | 9261   | 1    | B1 cao |

Q21.

| Question | Working | Answer        | Mark | Notes                    |
|----------|---------|---------------|------|--------------------------|
|          |         | Any even cube | B1   | for any even cube number |

Q22.

| Question | Working | Answer | Mark | Notes  |
|----------|---------|--------|------|--------|
|          |         | 4.913  | 1    | B1 cao |

Q23.

| Question | Answer | Mark | Mark scheme | Additional guidance |
|----------|--------|------|-------------|---------------------|
|          | 7776   | B1   | cao         |                     |

Q24.

|     | Working | Answer | Mark | Notes                       |
|-----|---------|--------|------|-----------------------------|
| (a) |         | 44.89  | 1    | B1 cao                      |
| (b) |         | 3.7    | 1    | B1 accept -3.7 or $\pm 3.7$ |



Q25.

| PAPER: IMA0/2F |         |        |      |  |
|----------------|---------|--------|------|--|
| Question       | Working | Answer | Mark | Notes  |
| (a)            |         | 6.7    | 1    | B1 for 6.7                                   |
| (b)            |         | 0.064  | 2    | B2 for 0.064<br>(B1 for 15.625 oe or 0.4 oe) |

Q26.

| Question | Working | Answer | Mark | Notes                           |
|----------|---------|--------|------|---------------------------------|
| (a)      |         | 56.25  | 1    | B1 for 56.25 or $\frac{225}{4}$ |
| (b)      |         | 3.2    | 1    | B1 for 3.2 or $\frac{16}{5}$    |

Q27.

| Question | Answer | Mark | Mark scheme | Additional guidance |
|----------|--------|------|-------------|---------------------|
|          | 1.3    | B1   | cao         |                     |

Q28.

| Question | Answer | Mark | Mark scheme                  | Additional guidance |
|----------|--------|------|------------------------------|---------------------|
|          | 4.2    | B1   | for 4.2 or $\frac{21}{5}$ oe |                     |

Q29.

| Question | Answer | Mark | Mark scheme | Additional guidance                     |
|----------|--------|------|-------------|---|
|          | 1.2    | B1   | oe          | Accept $\frac{12}{10}$ or $\frac{6}{5}$ |