Revision: Exponents and surds, square roots and cube roots

Simplify. Write the answers only.

1. **1.1** 8^2 **1.2** 4^3

1.3 2^3 **1.4** 1^3

1.5 12^2 **1.6** $2^3 + 2^2$

1.7 $6^2 - 3^2$ **1.8** $3^2 \times 2^3$

1.9 $10^3 - 10^2$ **1.10** $5^2 + 3^3$

2. **2.1** **a)** $\sqrt{16}$ **b)** $\sqrt{16x^8}$

2.2 **a)** $\sqrt[3]{27}$ **b)** $\sqrt[3]{27x^9}$

2.3 **a)** $\sqrt{100}$ **b)** $\sqrt{100x^2y^4}$

2.4 **a)** $\sqrt[3]{8}$ **b)** $\sqrt[3]{8x^6y^{12}}$

2.5 **a)** $\sqrt[3]{-1\,000}$ **b)** $\sqrt[3]{-1\,000x^{15}}$

2.6 **a)** $\sqrt{121}$ **b)** $\sqrt{\frac{121}{144}}$

2.7 **a)** $\sqrt{169}$ **b)** $\sqrt{169\sqrt{x^8}}$

2.8 **a)** $\sqrt[3]{8\,000}$ **b)** $\sqrt[3]{\frac{x^6}{8\,000}}$

2.9 **a)** $\sqrt{25}$ **b)** $\sqrt{25 \times 36}$

2.10 **a)** $\sqrt[3]{125}$ **b)** $\sqrt[3]{125a^3b^6c^{15}}$

3. **3.1** $\sqrt{\frac{16}{25}}$ **3.2** $\sqrt[3]{\frac{1}{8}}$

3.3 $\sqrt{2\frac{1}{4}}$ **3.4** $\sqrt{1{,}69}$

3.5 $\sqrt{9 \times 16}$ **3.6** $\sqrt{9} + \sqrt{16}$

3.7 $\sqrt{81} - \sqrt{25}$ **3.8** $-\sqrt{25}$

3.9 $\sqrt[3]{64} + \sqrt{64}$ **3.10** $\sqrt[3]{1} + \sqrt{\frac{1}{100}}$

Revision: Exponential laws

Write each answer using positive exponents.

1. **1.1** $x^4 \times x^3$ **1.2** $2^4 \times 2^3$

1.3 $3^4 \times 3^3$ **1.4** $2x^4 \times 5x^3$

1.5 $5x^5 \times 2x^2$ **1.6** $2^4 \times 2^3 \times 2^5$

1.7 $x^9 \div x^3$ **1.8** $5^{10} \div 5^3$

1.9 $2^8 \div 2^2$ **1.10** $10^{10} \div 10^3$

1.11 $10^5 \times 10^4 \times 10^3$ **1.12** $1^6 \times 1^3$

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