

Pages 16-17 — Square and Cube Numbers

Q1 E.g. $7^2 = 7 \times 7$.
If you double this you get $7 \times 7 \times 2$. But $14 = 7 \times 2$, so $14^2 = 7 \times 2 \times 7 \times 2$.
(1 mark)

$$7 \times 2 \times 7 \times 2 = 49 \times 2 \times 2 \\ = 98 \times 2 = \mathbf{196} \text{ (1 mark)}$$

Q2 $5 + 59 = 64$, and $8^2 = 64$, so $8^2 - 59 = 5$ (1 mark)

$$5^3 - 2^2 = 125 - 4 = 121, \\ \text{and } 11^2 = 121, \text{ so} \\ \mathbf{11^2 + 2^2 = 5^3} \text{ (1 mark)}$$

$$4^3 \div 2^3 = 64 \div 8 = 8, \\ \text{and } 2^3 = 8, \text{ so} \\ \mathbf{2^3 \times 2^3 = 4^3} \text{ (1 mark)}$$

Q3 $19^2 = 19 \times 19$,
 $30^2 = 30 \times 30$
So $19^2 \times 30^2$
 $= 19 \times 19 \times 30 \times 30$
 $= 19 \times 30 \times 19 \times 30$ (1 mark)
 $= 570 \times 570 = 570^2$ (1 mark)

For example, 9 and 4 are square numbers, but $9 \div 4 = 2.25$, which is not a square number. (1 mark)

Q4 **1 000 000** (1 mark)
1 000 000 (1 mark)

Q5 **Raj is right** (1 mark)
 $9 \times 9 \times 9 = 81 \times 9 = 729$
 $27 \times 27 = 729$ (1 mark)