

Units 1 & 2 End of unit test Model answer

- 1** $\sqrt{27}$ and $\sqrt{2} \times 7$ (-1 mark for each error) [2]
- 2 a** The product is 10. This can be shown by using a calculator. [1]
- b** Any valid answer, e.g. $\sqrt{2}$ and $4 - \sqrt{2}$ [1]
- 3 a** 1 [1]
- b** 256 [1]
- c** $\frac{1}{16}$ or 0.0625 [1]
- 4 Any valid answers. For example:**
- a** $\sqrt{2}$ [1]
- b** $\sqrt{90}$ [1]
- 5 a** 6.32×10^6 [1]
- b** 1.29×10^{-5} [1]
- 6 a** 350 000 [1]
- b** y, z, x [1]

7 a True. $17^2 = 289$ and $18^2 = 324$ [1]

b False. $7^3 = 343 > 300$ (A reason is required for the mark) [1]

8 a 2^5 [1]

b 2^0 [1]

c 2^{-3} [1]

9 a 5^7 [1]

b 6^{-2} [1]

10 a 45 [2]

b 0 [2]

c 72 [2]

11 a $6x + 2$ [2]

b $2x^2 + x$ [2]

12 a p^{12} [1]

b q^6 [1]

c r^{15} [1]

d $6t^5$ [1]

13 a B $12x^5$ [1]

b c $10y^6$ [1]

c A $\frac{1}{2}k^8$ [1]

d c $\frac{2}{3}m^7$ [1]

e D $\frac{3}{2}n^{-4}$ [1]

14 a $y^2 + 8y + 15$ [1]

b $m^2 - m - 2$ [1]

c $p^2 - 8p + 15$ [1]

d $n^2 - 16n + 64$ [1]

e $x^2 - 4$ [1]

15 a $\frac{3x}{5}$ [1]

b $\frac{y}{6}$ [1]

c $\frac{2a+b}{8}$ [1]

d $\frac{4a+3b}{18}$ [1]

e $3x+9$ [1]

16 a $T = 30$ [2]

b i $p = \frac{T}{x}$ [1]

ii $p = 6$ [2]

17 a B $x = \frac{y - c}{3}$ [1]

b c $x = 4(y + 2k)$ [1]

c A $x = 4ay - b$ [1]

18 a $A = 4x^2 + yz$ [2]

b $A = 64$ [2]

c $x = \sqrt{\frac{A - yz}{4}}$ [2]

d $x = 4$ [2]