

UNIT 3 Indices and Standard Form**Mental Tests**

M 3.1 Standard Route (*no calculator*)

1. Calculate 7^2 . (49)
 2. Calculate 10^2 . (100)
 3. Calculate 8^2 . (64)
 4. Calculate 10^3 . (1000)
 5. Calculate 2^3 . (8)
 6. Calculate 2^4 . (16)
 7. Calculate 3^3 . (27)
 8. Calculate 10^4 . (10 000)
 9. Calculate $2^2 + 3^2$. (13)
 10. Calculate $5^2 + 10^2$. (125)
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M 3.2 Academic Route (*no calculator*)

1. Calculate 9^2 . (81)
 2. Calculate 6^2 . (36)
 3. Calculate 5^3 . (125)
 4. Calculate 10^4 . (10 000)
 5. Calculate 2^5 . (32)
 6. Calculate $3^2 + 3^3$. (36)
 7. Calculate $5^3 + 10^2$. (225)
 8. Simplify $a^2 \times a^3$. (a^5)
 9. Simplify $a^7 \div a^4$. (a^3)
 10. Simplify $(a^4)^3$. (a^{12})
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UNIT 3 Indices and Standard Form

Mental Tests

M 3.3 Express Route (*no calculator*)

1. Calculate 12^2 (144)
 2. Calculate 2^5 . (32)
 3. Calculate 5^3 . (125)
 4. Calculate $10^4 + 10^5$. (110 000)
 5. Calculate $4^3 + 2^4$. (80)
 6. Simplify $a^4 \times a^5$. (a^9)
 7. Simplify $a^{17} \div a^{14}$. (a^3)
 8. Simplify $(a^6)^7$. (a^{42})
 9. Write 4^{-2} as a fraction. $\left(\frac{1}{16}\right)$
 10. Write 10^{-3} as a decimal. (0.001)
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