

UNIT 1 Base Arithmetic

Mental Tests

M 1.1 Standard Route *(no calculator)*

1. In binary, calculate $1 + 1$. (10)
 2. Convert the base 10 number 4 to a binary number. (100)
 3. Convert the binary number 11 to base 10. (3)
 4. In binary, calculate 11×10 . (110)
 5. In binary, calculate $11 + 1$. (100)
 6. Convert the base 10 number 5 to binary. (101)
 7. Convert the binary number 1000 to base 10. (8)
 8. In binary, calculate $10 - 1$. (1)
 9. In binary, calculate $10 + 10$. (100)
 10. Convert 110 from binary to base 10. (6)
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M 1.2 Academic Route *(no calculator)*

1. In binary, calculate $11 + 1$. (100)
 2. In binary, calculate $10 - 1$. (1)
 3. Convert the binary number 1000 to base 10. (8)
 4. Convert the binary number 101 to base 10. (5)
 5. Convert the binary number 111 to base 10. (7)
 6. Convert the base 10 number 10 to binary. (1010)
 7. In binary, calculate 101×10 . (1010)
 8. Convert 1111 from binary to base 10. (15)
 9. Convert the base 10 number 33 to binary. (100001)
 10. Convert the base 10 number 22 to binary. (10110)
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UNIT 1 Base Arithmetic

Mental Tests

M 1.3 Express Route *(no calculator)*

1. In binary, calculate $111 + 1$. (1000)
 2. In binary, calculate $1010 \div 10$. (101)
 3. Convert the base 10 number 33 to binary. (100001)
 4. In binary, calculate $100 - 1$. (11)
 5. Convert the binary number 1011 to base 10. (11)
 6. Convert the binary number 10001 to base 10. (17)
 7. Convert the base 10 number 66 to binary. (1000010)
 8. Convert 100 from base 10 to binary. (1100100)
 9. Convert the binary number 11011 to base 10. (27)
 10. In binary, calculate 11×11 . (1001)
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