

# Quiz 1

Mon Sep 17

You have up to 25 minutes. You may use a standard calculator, but no books or notes.

1. Suppose we have the digits **265**, written using base **seven**. What quantity does that represent, expressed in base **ten**?
2. Convert the following **unsigned** binary numbers into base ten.
  - a. 11100 \_\_\_\_\_
  - b. 111 \_\_\_\_\_
  - c. 11010 \_\_\_\_\_
  - d. 10101 \_\_\_\_\_
3. Convert the following base ten numbers into binary, using as many bits as needed.
  - a. 12 \_\_\_\_\_
  - b. 17 \_\_\_\_\_
  - c. 31 \_\_\_\_\_
  - d. 40 \_\_\_\_\_
4. When using **fixed-width 4-bit unsigned binary numbers**, what is  $13 + 7$ ? (Convert those to 4-bit binary, add the bits to get a 4-bit answer, and convert back to base ten.)
5. Convert the following signed numbers into binary using **6-bit signed two's complement**. (Every answer should include all six bits.)
  - a. -1 \_\_\_\_\_
  - b. -17 \_\_\_\_\_
  - c. 27 \_\_\_\_\_
  - d. -32 \_\_\_\_\_
6. Convert the following **hexadecimal** (base 16) number to **binary**. (Your answer should contain 16 bits.)

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