

Just kidding about those last three questions. (5 points each.)

1. How do you represent the decimal number 8 in binary?
2. How do you represent the binary number 11 in decimal?
3. What's the largest, positive value that you can represent with 16 bits?

Main Entry: moth · er · board

Pronunciation: -"bOrd, -"bored

Function: *noun*

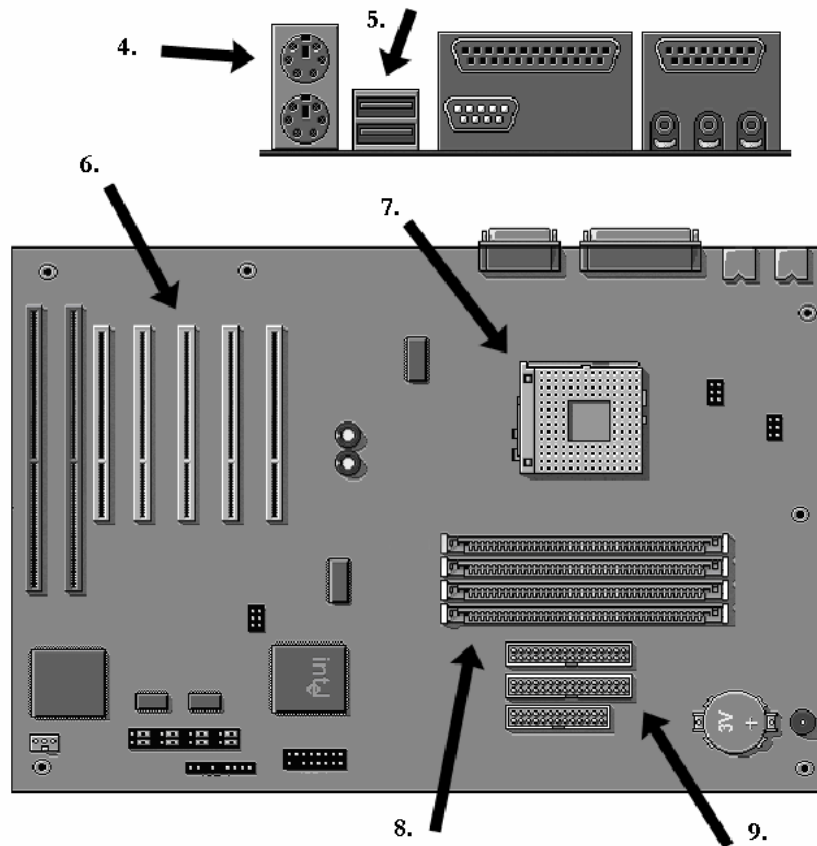
Date: 1972

: the main circuit board especially of a personal computer

: how David's mom feels when he goes on and on about the specs of his laptop

(5 points each.)

Consider the motherboard below, six of whose connectors are highlighted with arrows. Name one piece of hardware that could be connected to the connector at which the arrow is pointing; *do not simply cite the type of connector*. For instance, had we highlighted the parallel port, a correct answer would be "a printer," whereas an incorrect answer would be "a parallel port." Rest assured that more than one answer might be possible for a connector.



Short Answers. (5 points each.)

Please answer each of the following questions in one or more sentences each.

10. Suppose that you buy a brand-new computer and your mom sneaks into your room (right past the “no girls allowed” sign) and uses it while you’re at school. Unfortunately, she can’t save her work, since your computer hasn’t a FDD! In fact, it turns out that that certain brands of new computers don’t have FDDs. Hypothesize why. Is such a good thing?
11. Suppose that your mom takes you to the park. (You’ve been good.) After playing on the swings for a while, you decide that you want to play Frisbee, but, darn, you’ve left your Frisbee at home! Mom says, “Here, you can use one of these!” She hands you a DVD-ROM and a CD-ROM (both, you later learn, from your room). Hmmm, which one should you use...

CD-ROM discs and DVD-ROM discs look exactly the same, and, yet, they’re priced differently and hold different amounts of information. How is that possible, technically speaking? How much information can be stored on a DVD-ROM versus a CD-ROM?

Matching. (5 points each.)

Match each of the nine items in the left-hand column with the most appropriate descriptor in the right-hand column. For each item, only one descriptor is (most) appropriate; you should use each descriptor exactly once.

- | | |
|-----------------|-----------------|
| 12. L1 cache | A. 32-bit color |
| 13. register | B. 128 KB |
| 14. RAM | C. 512 MB |
| 15. L2 cache | D. 2.4 GHz |
| 16. HDD | E. 650 MB |
| 17. CPU | F. 1024 KB |
| 18. monitor | G. 1.44 MB |
| 19. CD-R | H. 32 bits |
| 20. floppy disk | I. 250 GB |

Extra Credit. (5 points.)

21. What number, in decimal, is represented by 101110000000100101000101111001101? What is the significance of that decimal number? Now, how do you write the number 4,294,967,294 (given in decimal notation) in binary notation?