Question: How many characters can be displayed on the 640 x 480 display using this font?

* 2400

Question: What is the character position associated with the pixel at location (279, 173)?

* (34,10)

Question: What is the position of this pixel within a character (i.e., what position is this pixel within a 8x16(character)?

* (7,13)

Question: How many bits are stored in the character memory?

* 32768 bits

Question: What address of the character memory holds the value for the character located on the character display at (65, 17)?

* 0x8C1

Question: What are the coordinates of the character stored at address 0xB8F in the character memory?

* (15,23)

Question: What is the default message that will be displayed on line 0? You will need to interpret the default ASCII values for line 0 to determine the text output.

* Go Cougars!

Question: Summarize the timing of a read operation.

* It is the read-first operation.

Question: Provide a VHDL statement that will determine the char\_read\_addr input based on the pixel\_x and pixel\_y signals (i.e., char\_read\_addr <= [ﬁll in the blank using pixel\_x and pixel\_y]).

* Char\_read\_addr <= pixel\_y(8 downto 4) & pixel\_x(9 downto 3);

Question: How wide, in bits, is each word of this ROM?

* 8 bits

Question: How many words are there in this ROM?

* 2048

Question: What is the total size, in bits, of this ROM?

* 2048\*8 = 16384

Question: What is the value of the word at address 0x32a in this ROM?

* 11000110

Question: What character is associated with address 0x32a in this ROM?

* 2

Question: What addresses in the font ROM store the contents for the character ‘A’?

* 0x410 to 0x41f

Question: Provide a VHDL statement that will determine the address input to the font ROM. Your statement should use the character read from the character memory AND the pixel\_y signal. (i.e., font\_rom\_addr <= <ﬁll in the blank>).

* font\_rom\_addr <= character\_read \_value(6 downto 0) & pixel\_y(3 downto 0);