College Algebra Quiz 4b

The correct response is shown in red. Explanations are shown in blue.

1. The domain of a function named f is not specified and the rule for f is given by the equation $f(x)=\frac{3x+2}{x-7}$. What is the domain of the function f ?

The domain of f is all real numbers except 7.
The convention is that the domain is all real numbers for which the rule makes sense. The only thing that does not make sense with the rule for f is division by zero. Division by zero would occur if x = 7. Therefore 7 must be excluded and the domain is all real numbers except 7.
If you wish to specify this domain using set notation you could write $\{x \mid x \in R \text{ and } x \neq 7\}$ or you might use interval notation and write $(-\infty,7)\cup(7,+\infty)$

2. Write the definition of sequence.
A sequence is a function whose domain is the natural numbers.

3. Suppose k is a sequence whose rule is given by $k(n)=\frac{2n-3}{2}$.
Calculate the first three terms of the sequence. Use functional notation to write your results.

$k(1)=\frac{2(1)-3}{2}=-\frac{1}{2}$
$k(2)=\frac{2(2)-3}{2}=\frac{1}{2}$
$k(3)=\frac{2(3)-3}{2}=\frac{3}{2}$

4. A point P with first coordinate t is on the graph of a function named H.
What is the second coordinate of the point P?
The second coordinate is H(t)
The point P is on the graph of H means that the second coordinate of P is the range value associated with the first coordinate. That range value is H(t). The point P is (t, H(t)).

5. The rule for mod_7 is given by mod_7(n) is the remainder when n is divided by 7. The domain for mod_7 is N and the range for mod_7 is {0, 1, 2, 3, 4, 5, 6}. What is the range element associated with 44 by the function mod_7? Use functional notation to present your answer.

$\text{mod}_7(44) = 2$ because $44 = (6)(7) + 2$