FIRST:

LAST:

**Discussion:**    Monday    9    10    11    12    1    2    3    4    5

(5 points) Let's say that two graphs are distinct if and only if they are not isomorphic. Is the set of distinct (finite) planar graphs countable or uncountable? Briefly justify your answer.

(10 points) Check the (single) box that best characterizes each item.

The set of all finite-length
strings of decimal digits          finite ☐          countably infinite ☐          uncountable ☐

$|A \times A| > |A|$          true ☐          false ☐          true for some sets ☐

Every function from the integers to
the integers has a corresponding
finite-length formula.          true ☐          false ☐          not known ☐

The set of all (finite) phone lattices
using the 26 letters A, ..., Z.          finite ☐          countably infinite ☐          uncountable ☐

The set containing all functions $f$
from the set of even integers to
the set of even integers          finite ☐          countably infinite ☐          uncountable ☐

FIRST:

LAST:

**Discussion:** Monday  9  10  11  12  1  2  3  4  5

(5 points) A "pretty wheel" graph is a wheel graph whose vertices are colored with colors from the set {red, green, blue, violet, yellow}. Two pretty wheels are distinct if they have a different number of nodes or if they have the same number of nodes but a different color pattern. Is the set of distinct pretty wheels countable or uncountable? Briefly justify your answer.

(10 points) Check the (single) box that best characterizes each item.

There are mathematical functions that don't have a finite formula.

    true ☐    false ☐    not known ☐

The rational numbers have the same cardinality as the reals.

    true ☐    false ☐    not known ☐

The set of all finite sequences of Chinese characters.

    finite ☐    countably infinite ☐    uncountable ☐

If $f : A \rightarrow B$ is one-to one

    $|A| < |B|$ ☐    $|A| \leq |B|$ ☐    $|A| = |B|$ ☐

$\mathbb{P}(\mathbb{N})$

    finite ☐    countably infinite ☐    uncountable ☐