GEO157
Spring 2018

NAME: _____

Problem Set 1 (Chapter 1)

1) Circle the following that are a component of a Geographical Information System (GIS).

a) ☐ software

b) ☐ reference book library

c) ☐ spatial data

d) ☐ Global Positioning System (GPS)

e) ☐ analysis procedures

f) ☐ data management

g) ☐ spatial index

h) ☐ satellite orbits

i) ☐ instrument analysis

j) ☐ people

2) Define or explain the following terms and phrases:

a) Spatial Data:

b) Attribute Data

c) Map Projection:

3) List the three basic spatial entities:

a) b)

c)

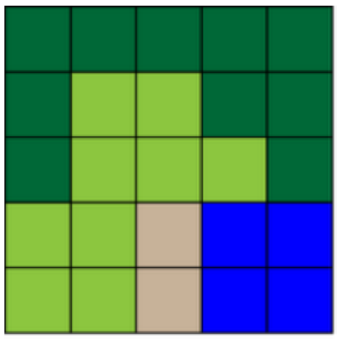
4) Identify the following features as spatial entity types then determine the type of model.

a)
Entity Type:

Model Type:

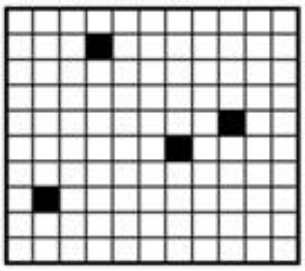
b)
Entity Type:

Model Type:



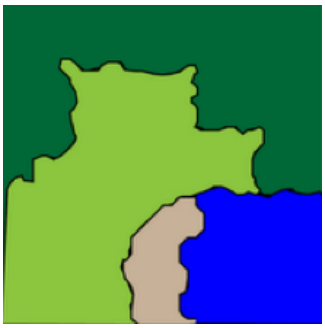
c)
Entity Type:

Model Type:



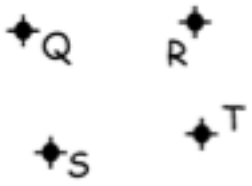
d)
Entity Type:

Model Type:



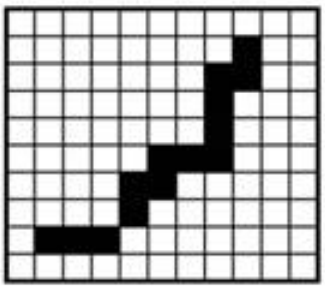
e)
Entity Type:

Model Type:



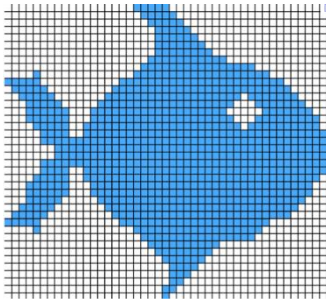
f)
Entity Type:

Model Type:



g)
Entity Type:

Model Type:



5) Describe recent instances that you have collected, analyzed, or communicated spatial data in one way or another in the past month.

a) Collected Spatial Data:

b) Analyzed Spatial Data:

b) Communicated Spatial Data:

6) Convert between degrees, minutes, seconds (DMS) format and decimal degrees (DD). See example below for guidance.

DD from DMS
DD = D + M/60 + S/3600
e.g.
DMS = 32° 45' 28"

DD = 32 + 45/60 + 28/3600
= 32 + 0.75 + 0.0077778
= 32.7577778

DMS from DD
D = integer part
M = integer of decimal part x 60
S = 2nd decimal x 60
e.g.
DD = 24.93547
D = 24
M = integer of 0.93547 x 60
= integer of 56.1282
= 56
S = 2nd decimal x 60
= 0.1282 * 60 = 7.692
so DMS is
24° 56' 7.692"

a) 45 ° 32' 55"

b) 28 ° 34' 12"

c) -78.62791

d) 113.46077

7) For the following attribute data, determine the type of measurement (nominal, ordinal, etc.).

a) Celsius temperature scale

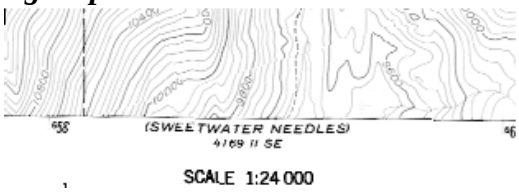
b) Scoville heat scale

c) Weight of the contestants on The Biggest Loser

d) License plate numbers

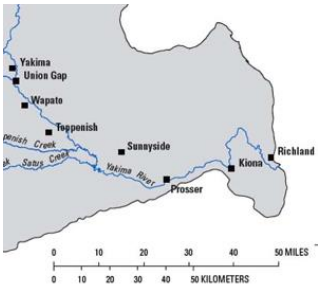
8) Determine the type of scale used in the following maps.

a)

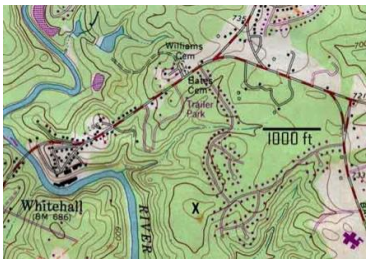


b) 1 cm = 1 km

c)



d)



9. Imagine you work for the local Parks and Recreation office and you want to create a new public park. Fill in the decision support tree to show how you would use a GIS to assist in choosing where to build a new park (see your class lecture notes or Figure 1.12 for an example).