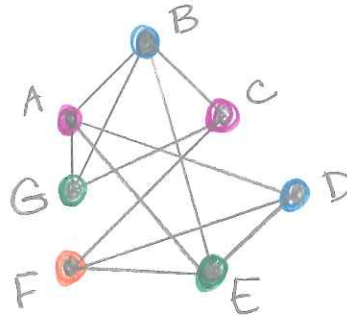


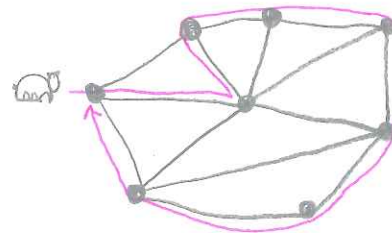
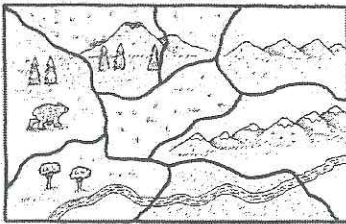
- (1) The math department is having difficulties scheduling courses A–G because of limited room availability. In the chart below, an “X” means two courses cannot be scheduled at the same time. Make a graph with vertices A–G. Make an edge between vertices if the corresponding courses cannot be scheduled at the same time. How many timeslots do we need to schedule all the classes?

	A	B	C	D	E	F	G
A		X		X	X		X
B	X		X		X		X
C		X				X	X
D	X				X	X	
E	X	X		X		X	
F			X	X	X		
G	X	X	X				



4 time slots

- (2) A bear (pictured) is followed closely by a bear hunter (not pictured). Whenever the bear crosses from one region into another the hunter lays a number of bear traps along that border. Make a graph with vertices **EACH REGION** the bear can visit. The edges of your graph should represent possible border crossings. Can the bear make a round-trip to every region without crossing the same border twice?



Yes

- (3) John the Deer (pictured) is friends with the bear from the previous question. He learns graph theory from the bear and uses it to understand the regions where he (John the Deer) likes to hang. Make a graph that uses regions and borders for vertices and edges.

Can John the deer make a round-trip, crossing every border, without having to cross any border twice?

No

Can John the deer make ANY trip, crossing every border, without having to cross any border twice?

No

