Chapter 3 – Thinking and reasoning with categories
Answers to select "Getting familiar with…" exercises.

Getting Familiar with… Categories

a.
There may be a number of categories associated with each claim. We have focused on the categories you would use for expressing the claims in categorical logic. For example, in number one, you might include *things that are ancient*, *things that are Greek*, and *things that are philosophers*. Your instructor will indicate which answers are most fitting for the goals of your class.

1. Aristotle was an Ancient Greek philosopher who wrote many treatises.
 Things that are Aristotle; things that are ancient Greek philosophers who wrote many treatises

2. Rob has seen a few mailboxes painted like R2-D2, but most are blue.
 Things that are mailboxes that Rob has seen; things that are mailboxes painted like R2-D2; things that are blue mailboxes

 [Again, your instructor may allow a much more expansive list that includes *things that are Rob*, *things Rob has seen*; *things that are mailboxes*; *things that are painted mailboxes*, etc.]

3. Dinosaurs, like the Stegosaurus, roamed the Earth during the Jurassic Period.
 Things that are dinosaurs; things that roamed the Earth during the Jurassic Period

4. People who are not handicapped but who take handicapped persons' parking spots belong in jail.
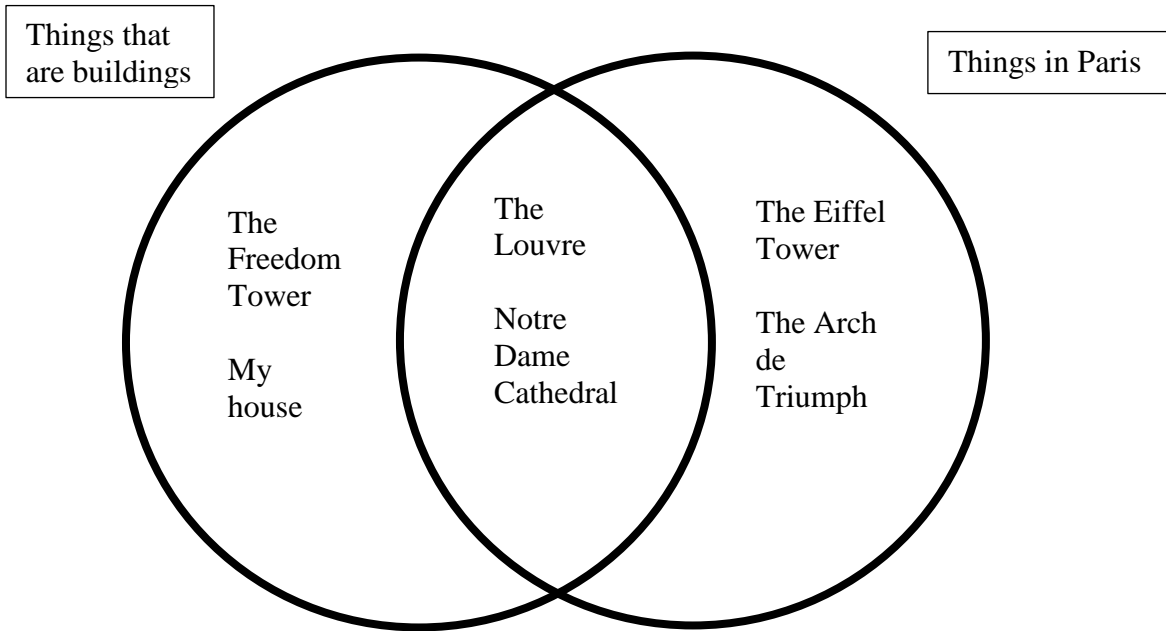 **Things that are people who are not handicapped but take handicapped persons' parking spots; people who belong in jail**
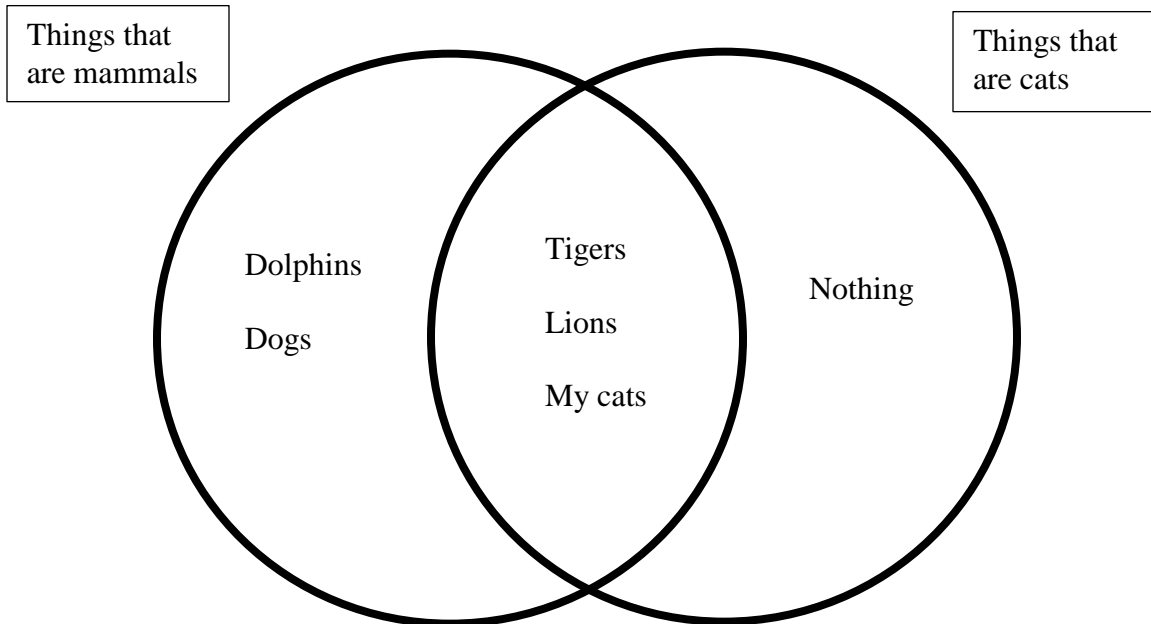
5. There are seven chimpanzees in that tree.
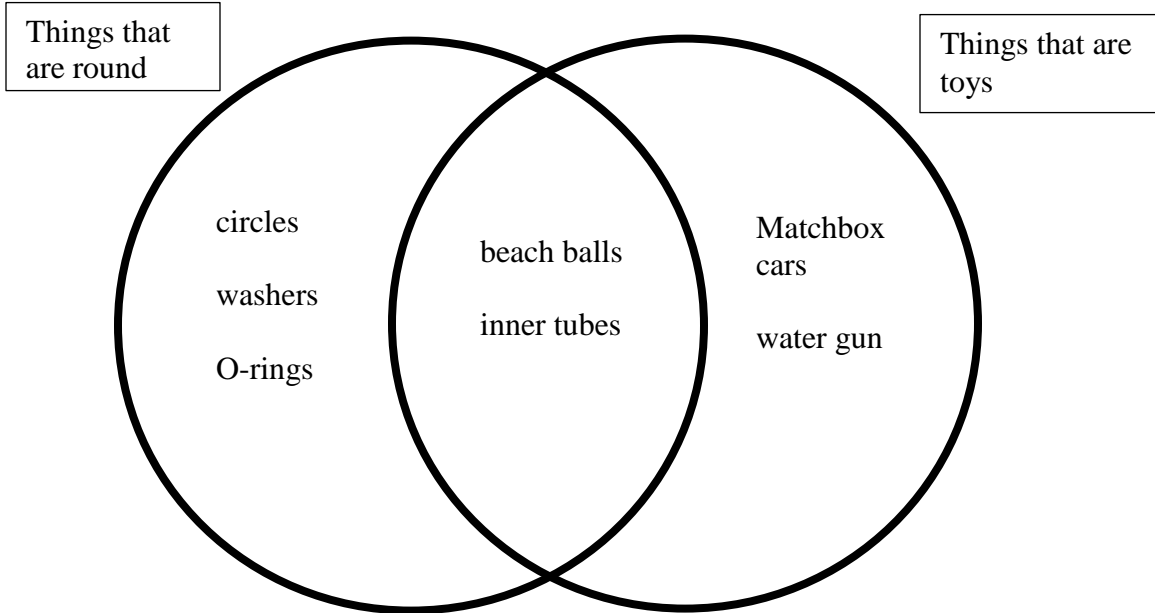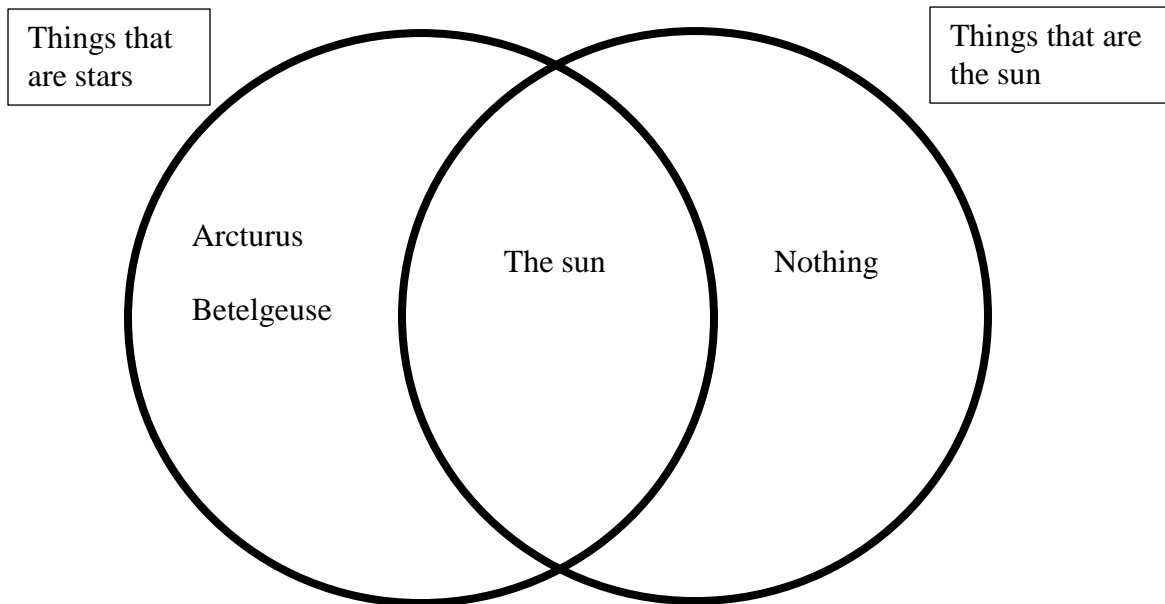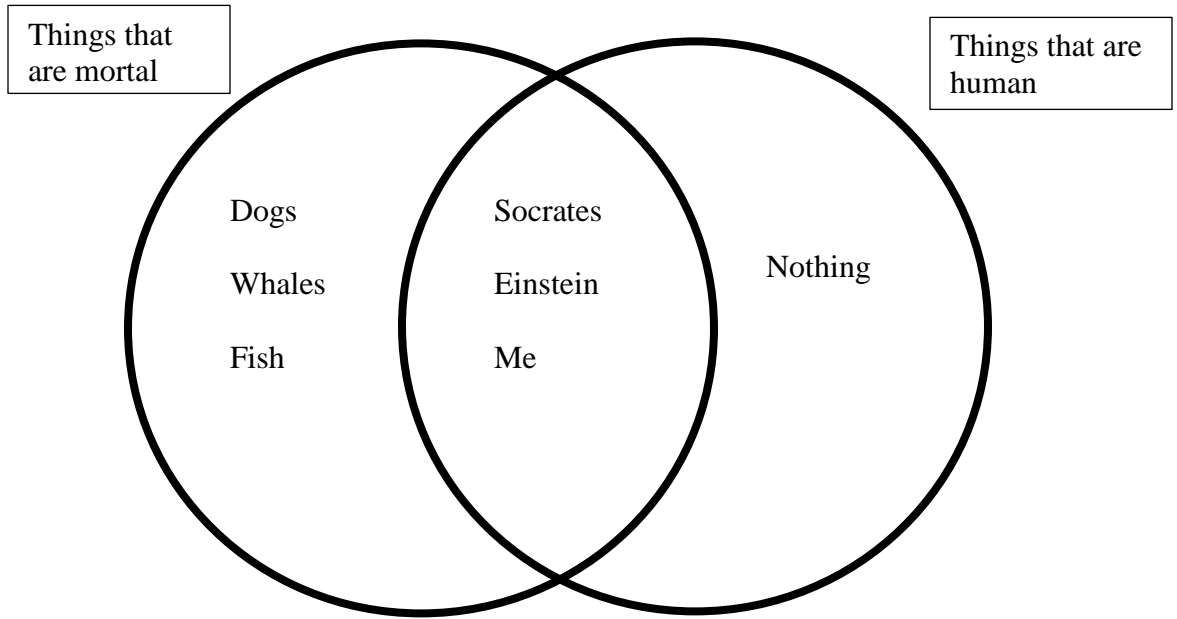 **Things that are seven chimpanzees; things that are in that tree**

b.

1.

| Things that are buildings | | Things in Paris |

The Freedom Tower

My house

The Louvre

Notre Dame Cathedral

The Eiffel Tower

The Arch de Triumph

3.

| Things that are mammals | | Things that are cats |

Dolphins

Dogs

Tigers

Lions

My cats

Nothing

5.

Things that
are round

Things that are
toys

circles

washers

O-rings

beach balls

inner tubes

Matchbox
cars

water gun

7.

Things that
are stars

Things that are
the sun

Arcturus

Betelgeuse

The sun

Nothing

9.

| Things that are mortal | | Things that are human |

Dogs

Whales

Fish

Socrates

Einstein

Me

Nothing

Getting familiar with… standard-form categorical claims.

1.
A: Cats
B: Mammals
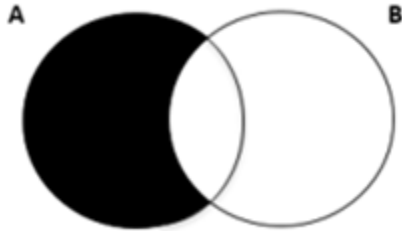
3.
A: Voters in the United States
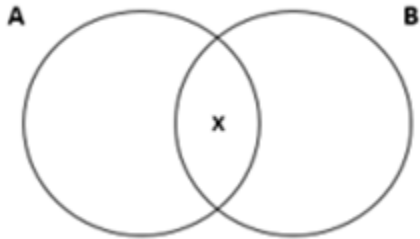B: People under 18 years old
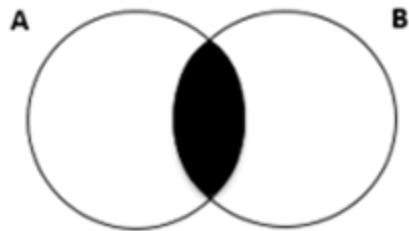
5.
A: Mormons
B: People that are rational
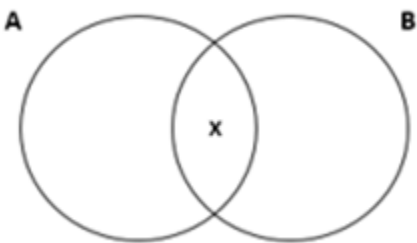
7.
A: People
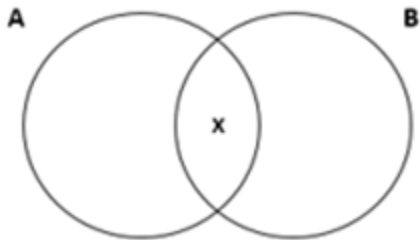B: People who like it hot

A   B

X

9.
A: Our students
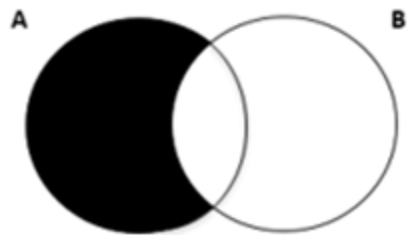B: People who are rational

A   B
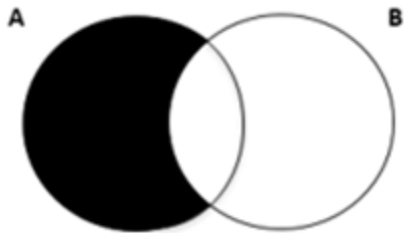
X

11.
A: Shelly and Zoe
B: People who are Hindu
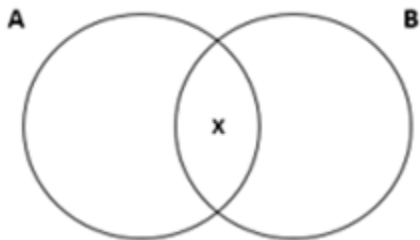
A   B

13.
A: Men
B: People who like Lady Gaga
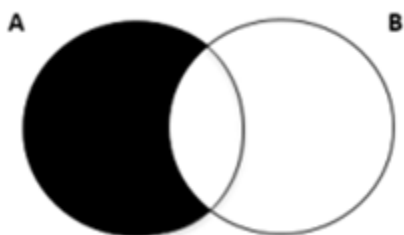

15.
A: Human males
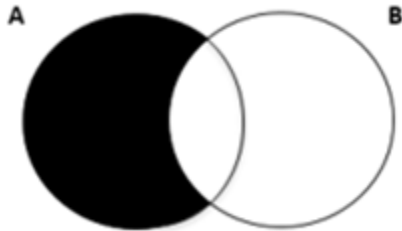B: People who are brown-haired

17.
A: Items in this bin
B: Items that are on sale

19.
A: Dinosaurs
B: Animals that are extinct

**Getting familiar with… the square of opposition.**

1. True
3. False
5. True
7. False
9. False (unless you invoke the existential assumption; then it is true)
11. False
13. True
15. True
17. False
19. False

**Getting familiar with… testing categorical arguments with Venn diagrams.**

1. All frigs are pracks. All pracks are dredas. So, all frigs are dredas.

Valid
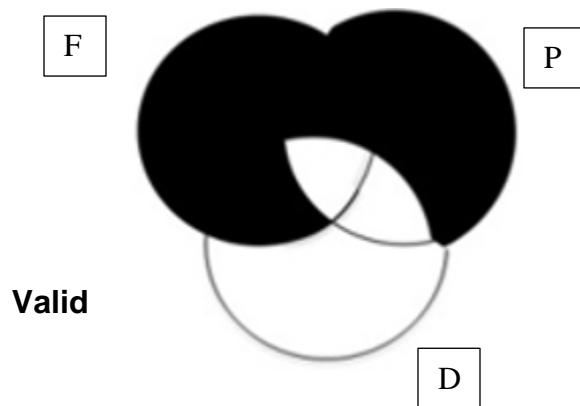
3. A few rock stars are really nice people. Alice Cooper is a rock star. Hence, Alice Cooper is a really nice person.

Invalid

R

N

X

A
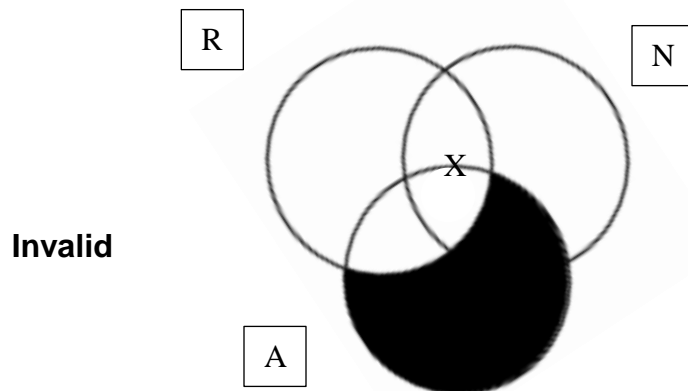
5. All CFCs (chlorofluorocarbons) deplete ozone molecules. CFCs are things that are produced by humans. Therefore, some things produced by humans deplete ozone molecules.

Invalid

C

D

R
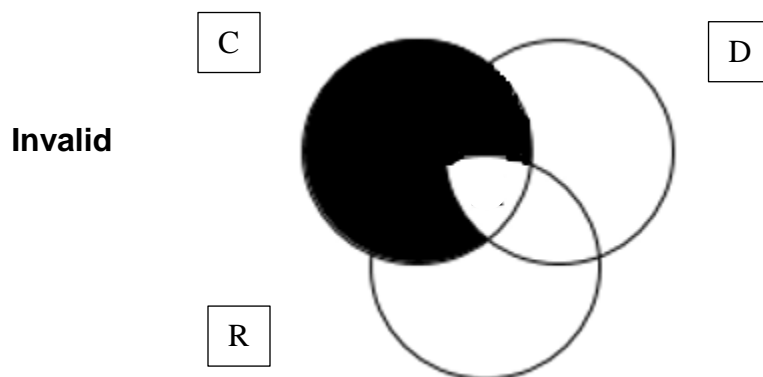
7. No drugs that can be used as medical treatment should be outlawed. Marijuana can be used as a medical treatment. Thus, marijuana should not be outlawed.

Valid

D

O

X

M
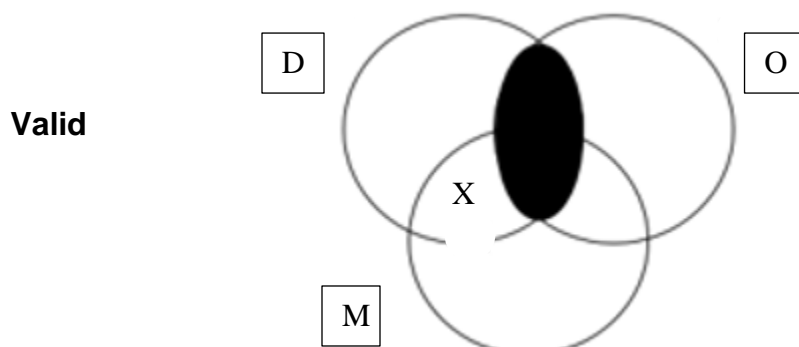
9. People who trust conspiracy theories are not good witnesses. A few clinically sane people trust conspiracy theories. So, some clinically sane people are not good witnesses.

Valid

T

G

S

X