1.)a.) $A(\text{Lois}, \text{Professor Michaels})$
b.) $\forall x(S(x)) \rightarrow A(x, \text{Professor Gross})$
c.) $\forall x(F(x)) \rightarrow (A(x, \text{Prof. Miller}) \vee A(\text{Prof. Miller}, x))$
d.) $\exists x(S(x)) \forall y(F(y)) \rightarrow \neg A(x,y)$
e.) $\exists x(F(x)) \forall y(S(y)) \rightarrow \neg A(y,x)$
f.) $\exists x(S(x)) \forall y(F(y)) \rightarrow A(x,y)$
g.) $\exists x(F(x)) \forall y(F(y)) \rightarrow A(x,y)$
h.) $\exists x(S(x)) \forall y(F(y)) \rightarrow \neg A(y,x)$

2.)a.) $\neg I(\text{Jerry})$
b.) $\neg C(\text{Rachel}, \text{Chelsea})$
c.) $\neg C(\text{Jan}, \text{Sharon})$
d.) $\forall x \exists(\neg C(x, \text{Bob}))$
e.) $\forall x (x \neq \text{Joseph}) \rightarrow C(x, \text{Jamay})$
f.) $\exists x \rightarrow (\neg I(x))$
g.) $\neg \forall x \rightarrow I(x)$
h.) $\exists x I(x)$
i.) $\exists x(\neg I(x)) \forall y(I(y))$
j.) $\forall x(I(x)) \rightarrow \exists y \rightarrow (C(x,y))$
k.) $\exists x(I(x)) \rightarrow (\neg C(x, \text{class}))$
l.) $\exists x \exists y (x \neq y) \rightarrow (\neg C(x,y))$
m.) $\exists x \forall y (C(x,y))$
n.) $\exists x \exists y \exists z (x \neq y) \rightarrow (\neg C(x,z) \leftrightarrow \neg C(y,z))$
o.) $\exists x \exists y \forall z (x \neq y) \rightarrow (C(x,z) \wedge C(y,z))$

3.)a.) $\neg M(\text{Chou}, \text{Kobo})$
b.) $\neg M(\text{Arlene}, \text{Sarah}) \wedge \neg T(\text{Arlene}, \text{Sarah})$
c.) $\neg M(\text{Deborah}, \text{Jose})$
d.) $\forall x \rightarrow (M(x, \text{Ken}))$
e.) $\forall x (\neg T(x, \text{Nina}))$
f.) $\forall x (T(x, \text{Avi}) \vee M(x, \text{Avi}))$
g.) $\exists x \forall y (M(x,y))$
h.) $\exists x \forall y \rightarrow (M(x,y) \vee T(x,y))$
i.) $\exists x \exists y \rightarrow (x \neq y) \rightarrow (M(x,y) \wedge M(y,x))$
j.) $\exists x \exists y (x = y) \rightarrow M(x,y)$
k.) $\exists x \forall y (\neg(M(y,x)) \wedge \neg(T(y,x))$
l.) $\exists x \exists y (x \neq y) \rightarrow$
m.) $\exists x \exists y (M(x,y) \wedge T(y,x))$
n.) $\exists x \exists y \forall z (x \neq y) \rightarrow (M(x,z) \vee T(y,z)) \vee (M(y,z) \vee T(x,z))$

10.)a.) $\forall x \forall y (x < 0 \wedge y < 0) \rightarrow x + y < 0$
b.) $\exists x \exists y (x > 0 \wedge y > 0) \rightarrow x - y \leq 0 \vee y - x \leq 0$
c.) $\exists x \exists y (x^2 + y^2 \geq (x+y)^2)$
d.) $\forall x \forall y (|x \cdot y| = |x| \cdot |y|)$

24.)a.) There exists a real number (x) that when added to any real number (y) equal to real number (y)
b.) Any positive real number when subtracted with any negative real number the result will be positive
c.) There exists real number (x) and there exists real number (y) with condition that x and y less than or equal to 0, when x subtracted by y the result will be positive real number
d.) The product of any two real numbers except for zero (0) is not equal to zero (0)

27.)a.) T
b.) T
c.) T
d.) T
e.) T
f.) F
g.) F
h.) T
i.) T

3. a.) Let $S(x, y)$ denote student x has taken y count of class mathclass

$\forall x\, S(x, 2)$

Negated statement:
There exists someone who has not taken 2 mathematics classes

b.) ~~Let $V(x)$ denote "x has visited" The domain of y will be is all countries in the world~~
~~$\exists x(V(x))$~~

b.) Let $V(x, y)$ denote "x has visited y". The domain of y is all countries in this world

$\exists x \forall y\, (y \neq \text{Libya}) \rightarrow (V(x, y))$

Negated statement:
Everyone has visited some countries including Libya.

c.) Let $C(x, y)$ denote "x has climbed y". Domain of y is mountains on Himalayas

$\forall x \forall y\, (\neg C(x, y))$

Negated statements:
Someone has climbed some mountains in the Himalayas.

d.) Let $B(x, y)$ denote "x has been in a movie with y", Domain is movie actors in the world.

$\forall x\, (B(x, \text{Kevin Bacon}) \vee B(x, \exists y(B(y, \text{Kevin Bacon}))))$

Negated Statements:
Some movie actors has not been in a movie with Kevin Bacon and has not been in a movie with someone who has been in a movie with Kevin Bacon