1. The **converse** of the statement $A \to B$ is the statement $B \to A$ and the **contrapositive** of the statement $A \to B$ is $\neg B \to \neg A$.

For each statement below (i) write the statement in if.. then... form and determine, if possible, whether the statement is true or false (ii) write the contrapositive of the statement and determine, if possible, whether the contrapositive is true or false (iii) write the converse of the statement and determine, if possible, whether the converse is true or false.

converse: $B \to A$ contrai: $\neg B \to \neg A$

(a) n is prime (a) only when ($n = 2$ or n is odd) (b)

i) if a then b / $a \to b$
if n is prime then n=2 or n is odd.
True

ii) $\neg b \to \neg a$
if n≠2 and n is even then n is not prime.
True, ← DeMorgan's Law

If then statements are only false when if = true then - false

iii) if b then a. / $b \to a$
if (n=2 or n is odd) then n is prime.
false because n could be odd and not prime.

(b) Horses have four legs whenever the sky is cloudy and the moon is full.

b = conditional part, a

The statement itself is very confusing, I could figure it out I think if I knew how to order it. Like, which part to put first, but I still tried. I keep trying to think of it litterally

i) if (the sky is cloudy and the moon is full) then horses have four legs.
True, since horses always have four legs.

ii) if (horses don't have four legs) ~~false~~ false so statement is True then the sky is clear or the moon isn't full.
TRUE ← [contrapositive is always true, and also the first part of this statement is always false.]
False, because a horse could have less than 4 legs and the sky could be cloudy or the moon