

TOPIC: LOGICAL ARGUMENTS

Logical Arguments

◆ A **logical argument** consists of initial statements called **premises** that _____ a **conclusion**.

► A logical argument is _____ if the conclusion is true when *all* premises are true.

New

Logical Arguments

1) If it is raining, then I will bring an umbrella to work.

2) It is raining.

∴ I will bring an umbrella to work.

↑



[VALID | NOT VALID]

◆ Prove an argument is valid by making a _____.

EXAMPLE

Prove the above argument is valid by making a truth table.

HOW TO: Prove a Logical Argument

- 1) **Translate** argument into _____
- 2) Make a **truth table** with all _____ & _____
- 3) **Identify** all rows where every **premise** is _____
- 4) **Check** if **conclusion** is true in each row from step (3)

TOPIC: LOGICAL ARGUMENTS

EXAMPLE

Determine the validity of the following logical argument.
 p : I submit the application. q : I receive a confirmation email.

- 1) If I submit the application, then I receive a confirmation email.
 - 2) I didn't receive a confirmation email.
-

$\therefore$ I didn't submit the application.

HOW TO: Prove a Logical Argument

- 1) **Translate** argument into *symbols*
- 2) Make a **truth table** with all *premises & conclusion*
- 3) **Identify** all rows where every *premise* is *true*
- 4) **Check** if *conclusion* is true in each row from step (3)

EXAMPLE

Determine the validity of the following logical argument.
 p : I win the raffle. q : I receive the consolation prize.

- 1) Either I win the raffle or I receive the consolation prize.
 - 2) I didn't receive the consolation prize.
-

$\therefore$ I win the raffle.

TOPIC: LOGICAL ARGUMENTS

EXAMPLE

Determine the validity of the following logical argument.

p : I practice my tennis serve. q : I win the next tennis match.

- 1) If I practice my tennis serve, then I win the next tennis match.
 - 2) I didn't practice my tennis serve.
-

$\therefore$ I won't win the next tennis match.

HOW TO: Prove a Logical Argument

- 1) **Translate** argument into *symbols*
- 2) Make a **truth table** with all *premises & conclusion*
- 3) **Identify** all rows where every *premise* is *true*
- 4) **Check** if *conclusion* is true in each row from step (3)

EXAMPLE

Determine the validity of the following logical argument.

p : It is the weekend. q : I have homework to finish.

- 1) Either it is the weekend or I have homework to finish.
 - 2) It is the weekend.
-

$\therefore$ I don't have homework to finish.