Quantifiers: for all

Quantifiers: for all

Given a statement with a variable, we can make it into an unconditional statement with “for all”:

Quantifiers: for all

Given a statement with a variable, we can make it into an unconditional statement with “for all”:

- n is prime.

depends on the variable n.

Quantifiers: for all

Given a statement with a variable, we can make it into an unconditional statement with “for all”:

- n is prime.

depends on the variable n. But

Quantifiers: for all

Given a statement with a variable, we can make it into an unconditional statement with “for all”:

- n is prime.

depends on the variable n. But

- n is prime for all integers n

does not depend on the value of a variable.

Quantifiers: for all

Given a statement with a variable, we can make it into an unconditional statement with “for all”:

- n is prime.

depends on the variable n. But

- n is prime for all integers n

does not depend on the value of a variable.

Lots of variations in wording:

Quantifiers: for all

Given a statement with a variable, we can make it into an unconditional statement with “for all”:

- n is prime.

depends on the variable n. But

- n is prime for all integers n

does not depend on the value of a variable.

Lots of variations in wording:

- For every integer n, n is prime.
- Every integer is prime.
- If n is an integer, then n is prime.
- Let n be an integer. Then n is prime.

Quantifiers: there exists

Quantifiers: there exists

We can also use “there exists” to make a variable statement into an unconditional statement:

Quantifiers: there exists

We can also use “there exists” to make a variable statement into an unconditional statement:

- There exists an integer n such that n is prime

does not depend on the value of a variable.

Quantifiers: there exists

We can also use “there exists” to make a variable statement into an unconditional statement:

- There exists an integer n such that n is prime

does not depend on the value of a variable.

Variations in wording:

Quantifiers: there exists

We can also use “there exists” to make a variable statement into an unconditional statement:

- There exists an integer n such that n is prime

does not depend on the value of a variable.

Variations in wording:

- n is prime for some integer n.
- There is a prime integer.

More examples

More examples

(a) There is a student who hasn't done the week 1 quiz. (true)

More examples

(a) There is a student who hasn't done the week 1 quiz. (true)

(b) Every student will do the week 2 quiz. (true)

More examples

(a) There is a student who hasn't done the week 1 quiz. (true)

(b) Every student will do the week 2 quiz. (true)

(c) $x + 1 > x$ for all real numbers x. (true)

More examples

(a) There is a student who hasn't done the week 1 quiz. (true)

(b) Every student will do the week 2 quiz. (true)

(c) $x + 1 > x$ for all real numbers x. (true)

(d) $n^2 > 10$ for every integer n. (false)

More examples

(a) There is a student who hasn't done the week 1 quiz. (true)

(b) Every student will do the week 2 quiz. (true)

(c) $x + 1 > x$ for all real numbers x. (true)

(d) $n^2 > 10$ for every integer n. (false)

(e) There is an integer n such that $n^2 > 10$. (true)

More examples

(a) There is a student who hasn't done the week 1 quiz. (true)

(b) Every student will do the week 2 quiz. (true)

(c) $x + 1 > x$ for all real numbers x. (true)

(d) $n^2 > 10$ for every integer n. (false)

(e) There is an integer n such that $n^2 > 1000$.

More examples

(a) There is a student who hasn't done the week 1 quiz. (true)

(b) Every student will do the week 2 quiz. (true)

(c) $x + 1 > x$ for all real numbers x. (true)

(d) $n^2 > 10$ for every integer n. (false)

(e) There is an integer n such that $n^2 > 1000$. (true)

More examples

(a) There is a student who hasn't done the week 1 quiz. (true)

(b) Every student will do the week 2 quiz. (true)

(c) $x + 1 > x$ for all real numbers x. (true)

(d) $n^2 > 10$ for every integer n. (false)

(e) There is an integer n such that $n^2 > 1000000$.

More examples

(a) There is a student who hasn't done the week 1 quiz. (true)

(b) Every student will do the week 2 quiz. (true)

(c) $x + 1 > x$ for all real numbers x. (true)

(d) $n^2 > 10$ for every integer n. (false)

(e) There is an integer n such that $n^2 > 1000000$. (true)