

OIL CONSERVATION COMMISSION

BOX 2045

HOBBS, NEW MEXICO

DATE Dec. 11, 1956

MR. W. B. MACEY
OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

RE: PROPOSED ORDER NO. DC 384

Dear Mr. Macey:

I have examined the application for dual completion dated 11/28/56
for J. H. Moore Pech State #2 32-21-36
Operator Lease Name Well No. Unit S-T-R

and my recommendations are as follows:

O.K.—E.J.F.

O.K.—J.W.R.

Yours very truly,

OIL CONSERVATION COMMISSION

Engineer-District 1

Mathematical Induction

Principle

Let $P(n)$ be a statement.

1. $P(1)$ is true.

2.

Assume $P(k)$ is true for some $k \in \mathbb{N}$.
Then $P(k+1)$ is true.

3. $P(n)$ is true for all $n \in \mathbb{N}$.

Q.E.D.

Example: Prove that $1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$ for all $n \in \mathbb{N}$.

Let $P(n)$ be the statement $1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$.

1. $P(1)$ is true because $1 = \frac{1(1+1)}{2} = 1$.

2. Assume $P(k)$ is true for some $k \in \mathbb{N}$.
Then $1 + 2 + 3 + \dots + k = \frac{k(k+1)}{2}$.

3. We need to show $P(k+1)$ is true, i.e., $1 + 2 + 3 + \dots + (k+1) = \frac{(k+1)(k+2)}{2}$.

4. $1 + 2 + 3 + \dots + (k+1) = (1 + 2 + 3 + \dots + k) + (k+1)$.

5. $= \frac{k(k+1)}{2} + (k+1) = \frac{k(k+1) + 2(k+1)}{2} = \frac{(k+1)(k+2)}{2}$.

6. Therefore, $P(k+1)$ is true.

Q.E.D.

Example

1. $1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$