# Ans-10.pdf

SP-DSE-MATH-EP(M2) 10(c)

## 1991-AL-P MATH 1 #01

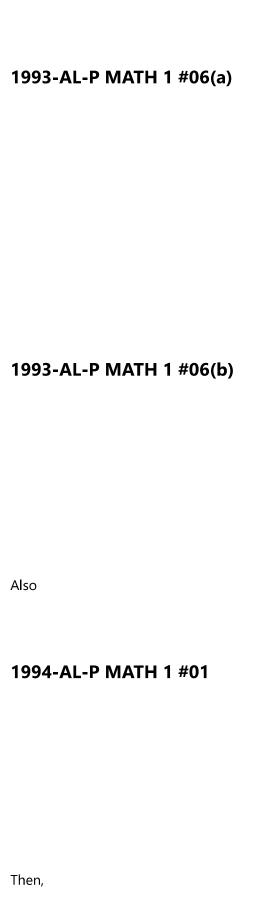
## 1992-AL-P MATH 1 #03

1.

2.

and

3.



## 1995-AL-P MATH 1 #01(a)

Let be the statement that for all positive integers n

For n = 1, L.H.S = R.H.S = L.H.S = R.H.S. is true

Assume that is true for some integer, then

is true

Therefore, is true by mathematical induction.

## 1995-AL-P MATH 1 #01(b)

Let , and

Then and

Hence,
,
1997-AL-P MATH 1 #07(a)
is non-singular

1996-AL-P MATH 1 #01

Also,

A is 3x3

1997-AL-P MATH 1 #07(b)

Therefore, is a root of Also, Therefore, roots of are and Now, Therefore, A is non-singular and Hence, is NOT a solution because or or or or 1999-AL-P MATH 1 #09(a) Let P(n) be the statement that for any positive integer n When n = 1, L.H.S. = R.H.S. = L.H.S. = R.H.S.Therefore P(1) is true.

Therefore, P(k+1) is true.

By mathematical induction, P(n) is true

Assume P(k) is true for some integer k 1, then,

## 1999-AL-P MATH 1 #09(b)

Note that:

and

```
if and
and
aq+bs=0 and ap=0 and ar=0
aq+bs=0 and p=0 and r=0 ()

On the other hand, if aq+bs=0 and p=0 and r=0,
and
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### 1999-AL-P MATH 1 #09(c)

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Let a = x, p = r = 0, and s = z so that and Now let and and and and (by 9(b))
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## 1999-AL-P MATH 1 #09(d)

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Let x=2, y=5, z=1, and also let
so that C=D+E and DE=ED=0
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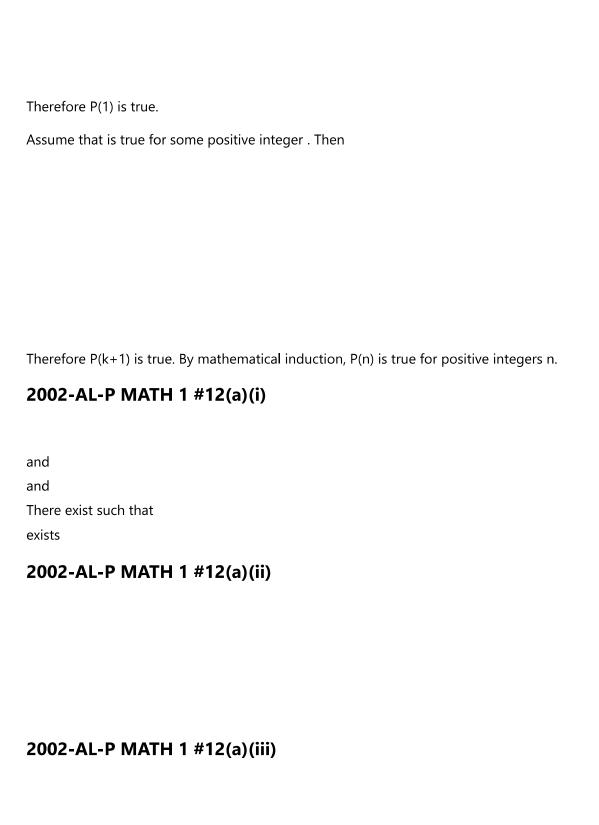
(by 9(a))

#### 2000-AL-P MATH 1 #01

Let P(n) be the statement that

for all positive integers n.

When n = 1,



are commutative i.e.

# Let , then 2002-AL-P MATH 1 #12(b)(i) Therefore, (by (a)(i)) 2002-AL-P MATH 1 #12(b)(ii) • For where k is an positive integer • For where k is an positive integer • For where k is an positive integer • For where k is an positive integer

2002-AL-P MATH 1 #12(a)(iv)

## 2002-AL-P MATH 1 #12(b)(iii)

Let , then

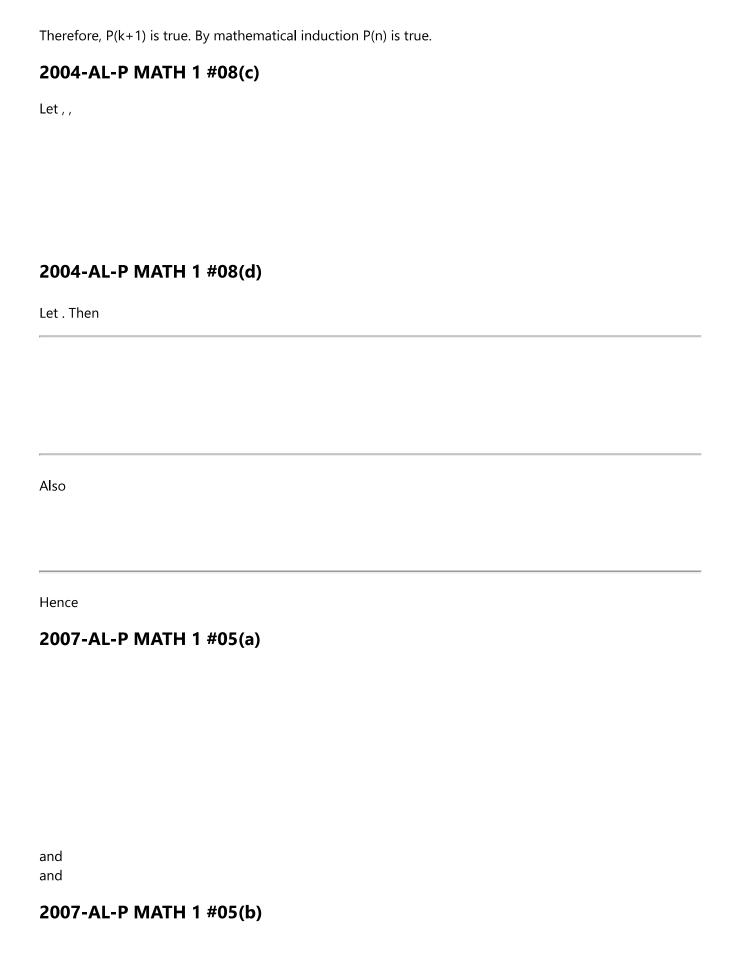
Also, let , then		
2003-AL-P MATH 1 #08(a)		
or		
2003-AL-P MATH 1 #08(b)		
Now and		
Also,		
Since		

Therefore,

• For n = 2k where k is a positive integer,

• For n = 2k-1 where k is a positive integer,
003-AL-P MATH 1 #08(c)
004-AL-P MATH 1 #08(a)
et
herefore,

2004-AL-P MATH 1 #08(b)
Let $P(n)$ be the statement that for all positive integers $n$ .  When $n=1$ ,
Therefore, P(1) is true.
Assume that P(k) is true for some positive integer k . Then,



Now,
is 2x2)
2011-AL-P MATH 1 #08(a)(i)
and Also, a, b are either both positive or both negative (both positive) or (both negative)
or
is non-singular.
2011-AL-P MATH 1 #08(a)(ii)

# 2011-AL-P MATH 1 #08(a)(iii)

and

2011-AL-P MATH 1 #08(b)

Let a=4, b=1, then

Also, let		
	so that	
where	and	for any positive integer k
Conside		
Let and	, trien	
-		

# SP-DSE-MATH-EP(M2) #10(a)

Let P(n) be the statement that for all positive integers n.

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When n = 1,

Therefore, P(1) is true.

Assume P(k) is true for some positive integer , then
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Therefore, P(k+1) is true. By mathematical induction P(n) is true.

## SP-DSE-MATH-EP(M2) #10(b)

or or

# SP-DSE-MATH-EP(M2) #10(c)

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and (or) or or
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