

**KOLEKSI SOALAN-SOALAN TAHUN LEPAS SPM**  
**MATHEMATICAL REASONING**

**SPM 2004**

1. a) State whether the following statement is true or false.

$$8 > 7 \text{ or } 3^2 = 6$$

b) Write down two implications based on the following sentence:

$$m^3 = 1000 \text{ if and only if } m = 10$$

c) Complete the premise in the following argument:

Premise 1: All hexagons have six sides.

Premise 2: \_\_\_\_\_

Conclusion:  $PQRSTU$  has six sides

**SPM 2005**

1. a) State whether each of the following statement is true or false.

i)  $8 \div 2 = 4$  and  $82 = 16$

ii) The elements of set  $A = \{12, 15, 18\}$  are divisible by 3 or the elements of set  $B = \{4, 6, 8\}$  are multiples of 4.

b) Write down Premise 2 to complete the following argument:

Premise 1: If  $x$  is greater than zero, then  $x$  is a positive number.

Premise 2: \_\_\_\_\_

Conclusion: 6 is a positive number.

c) Write down two implications based on the following sentence:

$$3m > 15 \text{ if and only if } m > 5$$

Implication 1: \_\_\_\_\_

Implication 2: \_\_\_\_\_

**SPM 2006**

1. a) Complete each of the following statements with the quantifier “all” or “some” so that it will become a true statement.

i) ..... of the prime numbers are odd numbers.

ii) ..... pentagons have five sides

b) State the converse of the following statement and hence determine whether its converse is true or false.

$$\text{If } x > 9, \text{ then } x > 5$$

c) Complete the premise in the following argument:

Premise 1: If set K is a subset of set L, then  $K \cup L = L$ .

Premise 2: .....

Conclusion: Set K is not a subset of set L.

**SPM 2007**

1 a) Complete the following statement using the quantifier “all” or “some”, to make it a true statement.

..... quadratic equations have two equal roots.

b) Write down Premise 2 to complete the following argument:

Premise 1: If M is a multiple of 6, then M is a multiple of 3.

Premise 2: .....

Conclusion: 23 is not a multiple of 6.

c) Make a general conclusion by induction for the sequence of numbers 7, 14, 27, ... which follows the following pattern.

$$7 = 3(2)1 + 1$$

$$14 = 3(2)2 + 2$$

$$27 = 3(2)3 + 3$$

$$\dots = \dots$$

d) Write down two implications based on the following statement:

$$\text{“}p - q > 0 \text{ if and only if } p > q\text{”}$$

**SPM 2008**

1) a) State whether the following compound statement is true or false:

$$53 = 125 \text{ and } -6 > -7$$

b) Write down **two** implications based on the following compound statement:

$$x^3 = -64 \text{ if and only if } x = -4$$

c) It is given that interior angle of a regular polygon of  $n$  side is  $\left(1 - \frac{2}{n}\right) \times 180^\circ$ .

Make **one** conclusion by deduction on the size of the interior angle of a regular hexagon.