

6

Loop Solution

Example solution:

```

FUNCTION AdjustClock(ThisYear : INTEGER) RETURNS INTEGER
  DECLARE ThisDayNumber, SundayCount : INTEGER
  DECLARE ThisDate : DATE

  ThisDayNumber ← 0
  SundayCount ← 0
  REPEAT
    ThisDayNumber ← ThisDayNumber + 1
    ThisDate ← SETDATE(ThisDayNumber, 3, ThisYear)
    IF DAYINDEX(ThisDate) = 1 THEN
      SundayCount ← SundayCount + 1
    ENDIF
  UNTIL SundayCount = 3
  RETURN ThisDayNumber
ENDFUNCTION

```

Mark as follows:

- MP1** Function heading, parameter, ending and return type
MP2 Declare local integer variable that is used to create a date
MP3 Loop until 3rd Sunday found
MP4 Attempt to use both SETDATE () and DAYINDEX () in a loop
MP5 Correctly generate value of type DATE using SETDATE () in a loop
MP6 Test if value represents a Sunday using DAYINDEX () in a loop
MP7 Increment Sunday count in a loop and initialised correctly before loop
MP8 Return day number of **third** Sunday

Max 7 marks

Non-loop solution

Example solution:

```

FUNCTION AdjustClock(ThisYear : INTEGER) RETURNS INTEGER
  DECLARE FirstDayIndex: INTEGER
  DECLARE ThisDate : DATE

  ThisDate ← SETDATE(1, 3, ThisYear)
  FirstDayIndex ← DAYINDEX(ThisDate)
  IF FirstDayIndex = 1 THEN
    ThirdSunday ← FirstDayIndex + 14 //First day is
                                     Sunday
  ELSE
    ThirdSunday ← 23 - FirstDayIndex // Other days
  ENDIF
  RETURN ThirdSunday
ENDFUNCTION

```

6

Mark as follows:

- MP1** Function heading, parameter, ending and return type
MP2 Declare local integer variable that is used to hold a day number
MP4 Attempt to use both SETDATE () and DAYINDEX ()
MP5 Correctly generate value of type DATE using SETDATE () for first of March / specific day in March
MP6 Test if date represents a Sunday / specific day using DAYINDEX () and calculate third Sunday // Correctly calculate third Sunday for a value returned by DAYINDEX () for one day
MP7 Calculate third Sunday for other six days
MP8 Return day number of **third** Sunday

Max 7 marks