DO NOT WRITE IN THIS MARGIN

8. A number matching game stores four winning numbers and compares them to a player's input of four numbers. 250 points are awarded for each number matched. For example, two matched numbers would be awarded 500 points.

The code below contains an error, as the player is always awarded 1000 points.

```
…
Line 10   DECLARE winningNos INITIALLY [10, 14, 21, 33]
Line 11   DECLARE numMatches INITIALLY 0
Line 12   DECLARE points INITIALLY 0
Line 13   RECEIVE no1 FROM KEYBOARD
Line 14   RECEIVE no2 FROM KEYBOARD
Line 15   RECEIVE no3 FROM KEYBOARD
Line 16   RECEIVE no4 FROM KEYBOARD
Line 17   FOR index FROM 0 TO 3 DO
Line 18     IF no1 = winningNos[index] THEN
Line 19       SET numMatches TO numMatches + 1
Line 20     ELSE IF no2 = winningNos[index] THEN
Line 21       SET numMatches TO numMatches + 1
Line 22     ELSE IF no3 = winningNos[index] THEN
Line 23       SET numMatches TO numMatches + 1
Line 24     ELSE
Line 25       SET numMatches TO numMatches + 1
Line 26     END IF
Line 27   END FOR
Line 28   SET points TO 250 * numMatches
Line 29   SEND "You matched "& numMatches & " numbers and have
          won " & points TO DISPLAY
…
```

8. (continued)

(a) A breakpoint is set at Line 26 and the program is tested using the following four player numbers as input:

no1	no2	no3	no4
5	10	15	22

Complete the trace table to show the values stored when the breakpoint is activated on the first two iterations of the loop. **2**

Breakpoint	Variable	Value
1st iteration	`index`	0
	`winningNos[index]`	
	`numMatches`	
2nd iteration	`index`	1
	`winningNos[index]`	
	`numMatches`	

(b) Explain, with reference to the code, why the number of matches always results in 4. **1**

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