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ÁREA DE MATEMÁTICAS
4$\underline{\text{to}}$ CONCURSO NACIONAL DE MATEMÁTICAS IB
PRUEBA 1 Y 2 – ESTUDIOS MATEMÁTICOS NM
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QUESTION 3.4

(a) (i) $\dfrac{220}{500}\left(\dfrac{11}{25}, 0.44, 44\,\%\right)$ *(A1)(G1)*

(ii) $\dfrac{180}{500}\left(\dfrac{9}{25}, 0.36, 36\,\%\right)$ *(A1)(G1)*

(iii) $\dfrac{40}{500}\left(\dfrac{2}{25}, 0.08, 8\,\%\right)$ *(A1)(A1)(G2)*

(iv) $\dfrac{55}{280}\left(\dfrac{11}{56}, 0.196, 19.6\,\%\right)$ *(A1)(A1)(G2)*   *[6 marks]*

> **Note:** Award *(A1)* for numerator, *(A1)* for denominator. Award *(A0)(A0)* if answers are given as incorrect reduced fractions without working.

(b) "The size of the television screen is independent of gender."   *(A1)*   *[1 mark]*

> **Note:** Accept "not associated", do not accept "not correlated".

(c) $\dfrac{180}{500}\times\dfrac{220}{500}\times 500$ **OR** $\dfrac{180\times 220}{500}$ *(M1)*

$= 79.2$ *(A1)*
$= 79$ *(AG)*   *[2 marks]*

> **Note:** Both the unrounded and the given answer must be seen for the final *(A1)* to be awarded.

(d) 3   *(A1)*   *[1 mark]*

(e) $\chi^2_{calc} = 104\,(103.957\ldots)$ *(G2)*   *[2 marks]*

> **Note:** Award *(M1)* if an attempt at using the formula is seen but incorrect answer obtained.

(f) 11.345   *(A1)*(ft)   *[1 mark]*

> **Notes:** Follow through from their degrees of freedom.

(g) $\chi^2_{calc} > \chi^2_{crit}$ **OR** $p < 0.01$ *(R1)*

Do not accept H_0.   *(A1)*(ft)   *[2 marks]*

> **Note:** Do not award *(R0)(A1)*(ft). Follow through from their parts (d), (e) and (f).

Total *[15 marks]*