3. Assume drink = x,

meal + drink = y

$x + y = 208$ → ①

$4x + 9y = 1277$ → ②

eqn ① × −4

$-4x - 4y = -832$ → ③

② + ③

$5y = 445$

$y = \frac{445}{5} = 89$

Substitute $y = 89$ in eqn ①

$x + 49 = 208$

$x = 208 - 49$

$x = 119$

Therefore: for drink 119 tickets were sold

meal + drink 49 tickets were sold.

4. Here center is $(h, k) = (-2, 3)$

given $V(5,3)$, $V'(-9,3)$

$M(-2,8)$, $M'(-2,-2)$

Length of major axis $2a = \sqrt{(5+9)^2 + (3-3)^2} = \sqrt{196} = 14$

$2a = 14$

$a = 14/2 = 7$

Length of minor axis $2b = \sqrt{(-2+2)^2 + (8+2)^2} = 10$

$b = 10/2 = 5$

Therefore eqn of ellipse $= \frac{(x+2)^2}{7^2} + \frac{(y-3)^2}{5^2} = 1 \Rightarrow \frac{(x+2)^2}{49} + \frac{(y-3)^2}{25} = 1$

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