3.3.3 & 3.3.4.

(a) $P = 1016 / 6549 = 0.1551$.

(b) $p = 216 / 2115 = 0.1021$

(c) No, because the two answers have large difference, hence the probability of being stressed changes significantly after conditioning on having high income. Hence they are not independent.

(d) $p = 2480 / 6549 = 0.3787$

(e) $p = (526 + 274 + 216 + 1954) / 6549 = 0.4530$

or $p = (2480 + 1016 - 526) = 0.4530$

(f) $p = 526 / 6549 = 0.0803$

3.5.7 & 3.5.8

(a) $\mathbb{P}(Y \geq 3) = 0.047 + 0.004 = 0.051$.

(b) $\mathbb{P}(Y \leq 1) = 0.316 + 0.422 = 0.739$

(c) $\mathbb{P}(Y \geq 1) = 1 - \mathbb{P}(Y \leq 0)$

$= 1 - 0.316 = 0.684$.

(d) $\mu_Y = 0 \times 0.316 + 1 \times 0.422 + 2 \times 0.211 + 3 \times 0.04) + 4 \times 0.004$

$= 1.001$.

3.6.4 (a) $P = \binom{20}{20} \cdot (0.9)^{20} = (0.9)^{20} = 0.1216$

(b) $P = \binom{20}{19} \cdot (0.9)^{19} \cdot (0.1)$

$= 0.2702$

(c) $P = \binom{20}{18} \cdot (0.9)^{18} \cdot (0.1)^2$

$= 0.2851$

(d) $P = 0.2851$.