Hw_06
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I pledge my honor that I have abided by the Stevens honor code

9.37

a)

stratum	amount allowed	total
sm	51	57
md	12	17
lg	4	5

- 79 total samples
- 67 allowed samples
- 12 not allowed samples

b) sm → 10.5%
md → 29.4%
lg → 20%

c) To perform a significance test, we combine the medium and large strata b/c the amount of not allowed large sample sizes is not enough.

d) An appropriate null hypothesis to be tested is when, H_0: There is no relation between allowed samples and claimed size

e)

md/lg	sm
48.34 allowed	18.66 allowed
8.66 !allowed	3.34 !allowed

$df = 1$
$\chi^2 = 3.46$
$\sum \frac{(O-E)^2}{E}$
p-value = .063, .064
- null hypothesis is accepted

9.38

a)

sm → .105 × 3342 = 351

md → .294 × 296 = 72

lg → .2 × 58 = 12

not allowed

b) $SE = \sqrt{\frac{p(1-p)}{n}}$ standard error

sm → $\sqrt{\frac{.105(1-.105)}{57}} = .406 \cdot 1.96 = .08$ margin of error

md → $\sqrt{\frac{.294(1-.294)}{17}} = .1104 \cdot 1.96 = .217$

lg → $\sqrt{\frac{.2(1-.2)}{5}} = .179 \cdot 1.96 = .35$

9.5

	#	P	exp.
$x \leq -.6$	139	.27	137.15
$-.6 < x \leq -.1$	102	.19	92.95
$-.1 < x \leq .1$	41	.08	39.8
$.1 \leq x \leq .6$	78	.19	92.95
$x > .6$	140	.27	137.15

$df = 4$

$x^2 = 3.4$

$P = .49$

null hypothesis is not rejected and this show normal distribution b/c P is greater than .05

9.51

	#	P	exp.
$x \leq -.7$	112	.24	121
$-.7 < x \leq -.2$	82	.18	89.35
$-.2 < x \leq .2$	77	.16	79.3
$.2 < x \leq .7$	111	.18	89.4
$x > .7$	118	.24	121

$df = 4$

$x^2 = 6.66$

$P = .16$

null hypothesis is not rejected and this show normal distribution b/c P is greater than .05