6(a)	$P\left(\frac{148-155}{6} < Z < \frac{160-155}{6}\right)$
	$[= P(-\ 1.1667 < Z < 0.8333)$ $= \Phi(1.1667)+\Phi(0.8333)-1\ ]$ $= 0.7975 + 0.8784 - 1$ Or $(0.7975 - 0.5) + (0.8784 - 0.5)$ Or $0.2975 + 0.3784$
	$= 0.6759$
	[Expected number $= 0.6759\ \times 350 = 236.565$] 236

6(b)	$\frac{114-\mu}{\sigma} = 1.406$ $\frac{99.5-\mu}{\sigma} = -0.842$
	Solve, obtaining values for μ and σ $\mu = 105,\ \sigma = 6.45$

3(a)	$\mathrm{P}\left(\frac{182.4-187.4}{6.4} < Z < \frac{192.4-187.4}{6.4}\right)$
	[= P($-$ 0.78125 < Z < 0.78125) = $2\Phi(0.7813)-1$] = $2\times 0.7826-1$ Or $0.7826-(1-0.7826)$ Or $0.7826-0.2174$ Or $(0.7826-0.5)+(0.7826-0.5)$ Or 2×0.2826
	0.5652
	[Expected number = $124\times 0.5652 = 70.08$,] 70

3(b)	[P(X < 170.3) = 0.23, P(Z > $\frac{170.3-172.7}{\sigma}$) = 0.77] $\frac{170.3-172.7}{\sigma} = -0.739$ or $\frac{172.7-170.3}{\sigma} = 0.739$
	$\sigma = 3.25$

6(a)	[$\left(\frac{5}{7}\right)^{10}$ =] 0.0346, $\frac{9765625}{282475249}$

6(b)	**Method 1**
	[P(0, 1, 2) =] $^{10}C_2\left(\frac{6}{7}\right)^8\left(\frac{1}{7}\right)^2 + {}^{10}C_1\left(\frac{6}{7}\right)^9\left(\frac{1}{7}\right) + \left(\frac{6}{7}\right)^{10}$ $\left[= 0.2675729 + 0.3567639 + 0.2140583 =\right]$
	0.838
	[P(0,1,2) =] $1 - \{\left(\frac{1}{7}\right)^{10} + {}^{10}C_9\left(\frac{6}{7}\right)\left(\frac{1}{7}\right)^9 + {}^{10}C_1\left(\frac{6}{7}\right)^2\left(\frac{1}{7}\right)^8 + {}^{10}C_1\left(\frac{6}{7}\right)^3\left(\frac{1}{7}\right)^7 + {}^{10}C_1\left(\frac{6}{7}\right)^4\left(\frac{1}{7}\right)^6 + {}^{10}C_1\left(\frac{6}{7}\right)^5\left(\frac{1}{7}\right)^5 + {}^{10}C_1\left(\frac{6}{7}\right)^4\left(\frac{1}{7}\right)^6 + {}^{10}C_1\left(\frac{6}{7}\right)^3\left(\frac{1}{7}\right)^7\}$
	0.838

6(c)	[Mean = $392 \times \frac{1}{7}$ =] 56 [Variance = $392 \times \frac{1}{7} \times \frac{6}{7}$ =] 48
	[P(X > 65) = P(Z >] $\frac{65.5 - 56}{\sqrt{48}}$)
	[= 1 – $\Phi(1.3712)$] = 1 – 0.9149
	= 0.0851 final answer

1	$\mathrm{P}\left(Z < \dfrac{1.48-\mu}{0.14}\right) = 0.22$
	$\dfrac{1.48-\mu}{0.14} = -0.772$
	$\mu = 1.59$