6.1.2: 14, 18, 19, 23, 25

		21	22	23	24	25	≥26
14. a)	Age @ death						1,250
b)	Profit	-99,750	-99,500	-99,250	-99,000	-98,750	
	Prob	.00183	.00186	.00189	.00191	.00193	.99058

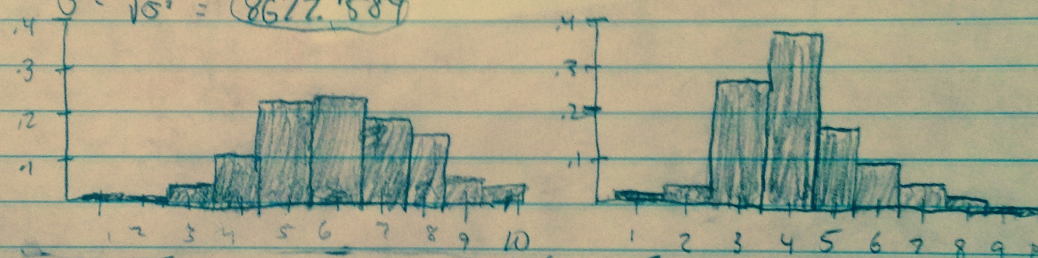
c) $E(x) = \sum x_i p_i = \$303.447$ In the long run, the insurance company is expected to make a profit of \$303.447.

18. a) In the long run, the insurance company makes enough \$1250 premiums to more than cover for the comparably few \$100,000 losses.

b) $\sigma^2 = \sum (x_i - E(x))^2 (p_i) = 75300466.89$

$\sigma = \sqrt{\sigma^2} = 8677.584$

19. a)



b) $E(X) = \sum x_i p_i = 6.284$ $E(Y) = \sum y_i p_i = 4.187$

Y is skewed right, so the mass of numbers are to the left, which are heavily impacted by the weighting

c) $\sigma^2(X) = \sum (x_i - E(x))^2 (p_i) = 2.689344$

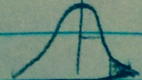
$\sigma^2(Y) = \sum (y_i - E(y))^2 (p_i) = 1.71003$

Y is ~~less~~ spread out than X is, so its standard deviation should be lower.

23. Find the probability of a point randomly selected on a normal curve being ≥ 9.

In the long run, 8.46% of the time, when you pick a random student,

We will find the z score and then use a table.



$z = \frac{9 - 6.8}{1.6} = 1.375$. $P(z \geq 1.375) = 8.46\%$

25. a) $z_1 = \frac{.52 - .56}{.019} = -2.105$ $z_2 = \frac{.60 - .56}{.019} = 2.105$ $P(-2.105 \leq z \leq 2.105) = 96.473$

b) $z_3 = \frac{.72 - .56}{.019} = 8.42$ $P(z \geq .72) = 1.888 \cdot 10^{-17}$