Section 3: Cont'd

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(2) Project 1 has 35% chance of earning $0
50% $300,000
15% $800,000

Project 2 has 60% " " " $0
40% $1,000,000

a) probability distributions of earnings:

Project 1

x	p(x)
0	0.35
300 000	0.5
800 000	0.15

Project 2

x	p(x)
0	0.6
1,000,000	0.4

b) expected earnings:

$$\mu_1 = \Sigma x p(x)$$
$$= 0(0.35) + 300,000(0.5) + 800,000(0.15)$$
$$= \$270,000$$

$$\mu_2 = 0(0.6) + 1000000(0.4) = \$400,000$$

c) std dev of earnings for each project

$$\sigma_1^2 = \Sigma x^2 p(x) - \mu^2$$
$$= 0(0.35) + 300000^2(0.5) + 800000^2(0.15) - (270000)^2$$

$= 6.81 \times 10^{10}$

$\sigma_1 = \sqrt{\sigma_1^2} = \$261{,}000$

$\sigma_2^2 = 0(0.6) + 1000000^2(0.4) - 400000^2$

$= 2.4 \times 10^{11}$

$\sigma_2 = \sqrt{\sigma_2^2} = \$490{,}000$

d) which project has higher expected earnings?

Project 2 has higher expected earnings

$\mu_2 > \mu_1$

e) which project is riskier?

Project 2 is riskier since $\sigma_2 > \sigma_1$

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(3) you have $2000 tablet

$P(\text{theft}) = 4.7\%$

premium m

a) probability distribution of insurance company's gain

	X	P(x)
no theft	m	0.953
theft	$m - 2000$	0.047

b) find m if expected gain by company is \$40

$$\mu = E(x) = \Sigma x p(x)$$

$$= m(0.953) + (m - 2000)(0.047)$$

$$= 0.953m + 0.047m - 94$$

$$40 = m - 94$$

$$m = \$134$$