Problem 63-1

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a

a: $\frac{1}{16} * t^2 = \frac{1}{16}$ when t = 1

b: $1 - \frac{1}{16} * t^2 = \frac{3}{4}$ where t = 2

c:

b

a: It's not raining (2/3) * there is traffic (1/4) * not late (3/4) = 6/48

b: $(\frac{1}{3} * \frac{1}{2} * \frac{1}{2}) + (\frac{1}{3} * \frac{1}{2} * \frac{1}{4}) + (\frac{2}{3} * \frac{1}{4} * \frac{1}{4}) + (\frac{2}{3} * \frac{3}{4} * \frac{1}{8}) = 22.9\%$

c:

c

d

$$\frac{3}{10}^k * \frac{7}{10}^{20-k}$$

e

$$\frac{\frac{30!}{(30-k)!}}{\frac{100!}{(100-k)!}} * \frac{\frac{70!}{(70-(20-k))!}}{\frac{100!}{(100-(20-k))!}}$$

f

g

$Var[2X - Y] = 6$

$Var[X + 2Y] = 9$
$Var[X_1 + X_2] = Var[X_1] + Var[X_2] + 2 * Cov[X_1, X_2]$