Table 3: Rating system

★★★★★	Essential—appears repeatedly on every exam
★★★★	Important—appears on every exam
★★★	Average importance—regularly appears on exams
★★	Not so important—appears occasionally on exams, or easy to derive as needed
★	Obscure—on syllabus, but unlikely to appear on exam. Sometimes this indicates a formula not covered by all the reading options. No released exam uses this formula or concept, and students have never reported a question from an unreleased exam requiring this formula or concept.

★★★★★

Definition of $S(x)$

1F

$$S(x) = \Pr(X > x)$$

★★★★★

Two general formulas for $H(x)$

$$H(x) = \int_{-\infty}^{x} h(t)\mathrm{d}t = -\ln S(x)$$

★★★

Two general formulas for $h(x)$

$$h(x) = \frac{f(x)}{S(x)} = -\frac{\mathrm{d}\ln S(x)}{\mathrm{d}x}$$

★★★

Formula for third central moment in terms of third raw moment

4F

$$\mu_3 = \mu'_3 - 3\mu'_2\mu + 2\mu^3$$

★★★★★

Formula for second central moment in terms of second raw moment

5F

$$\sigma^2 = \mu_2' - \mu^2$$

★★

$\mathbf{E}[X^k]$ *in terms of* $S(x)$*, assuming* $\Pr(X < 0) = 0$

49F

$$\mathbf{E}[X^k] = \int_0^\infty kx^{k-1}S(x)\mathrm{d}x$$

★★★★★

$\mathbf{E}[X]$ *in terms of* $S(x)$*, assuming* $\Pr(X < 0) = 0$

50F

$$\mathbf{E}[X] = \int_0^\infty S(x)\,\mathrm{d}x$$

★★

$\mathbf{E}[(X \wedge u)^k]$ *expressed in terms of an integral with* $f(x)$, *assuming* $\Pr(X < 0) = 0$

51F

$$\mathbf{E}\left[(X \wedge u)^k\right] = \int_0^u x^k f(x)\mathrm{d}x + u^k\big(1 - F(u)\big)$$

★★★★

$\mathbf{E}[X \wedge u]$ *expressed in terms of an integral with* $f(x)$*, assuming* $\Pr(X < 0) = 0$

52F

$$\mathbf{E}[X \wedge u] = \int_0^u x f(x)\mathrm{d}x + u\big(1 - F(u)\big)$$

★

$\mathbf{E}[(X \wedge u)^k]$ *in terms of* $S(x)$, *assuming* $\Pr(X < 0) = 0$

53F

$$\mathbf{E}\left[(X \wedge u)^k\right] = \int_0^u k x^{k-1} S(x)\mathrm{d}x$$

★★★★

Definition of truncation

*A **truncated** observation is one that is conditional on the random variable not being in the truncated range.*

★★★★

Definition of censoring

*A **censored** observation is one that is known to be in the censored range, but whose exact value is not known.*

★★★★★

Kaplan-Meier Product Limit Estimator

$$S_n(t) = \prod_{i=1}^{j-1} \left(1 - \frac{s_i}{r_i}\right), \qquad y_{j-1} \le t < y_j$$

★★★

Recursive version of product limit estimator

$$S_n(y_j) = S_n(y_{j-1})\left(1 - \frac{s_j}{r_j}\right)$$

★★★

Formula for exponential extrapolation of product limit estimator

$$S_n(t) = S_n(u)^{t/u}$$

where u is the ending time of the study and $t > u$