## Table A.1  Cumulative Binomial Probabilities

$$B(x; n, p) = \sum_{y=0}^{x} b(y; n, p)$$

### a.  $n = 5$

| | | 0.01 | 0.05 | 0.10 | 0.20 | 0.25 | 0.30 | 0.40 | 0.50 | 0.60 | 0.70 | 0.75 | 0.80 | 0.90 | 0.95 | 0.99 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | *p* | | | | | | |
| | 0 | .951 | .774 | .590 | .328 | .237 | .168 | .078 | .031 | .010 | .002 | .001 | .000 | .000 | .000 | .000 |
| | 1 | .999 | .977 | .919 | .737 | .633 | .528 | .337 | .188 | .087 | .031 | .016 | .007 | .000 | .000 | .000 |
| *x* | 2 | 1.000 | .999 | .991 | .942 | .896 | .837 | .683 | .500 | .317 | .163 | .104 | .058 | .009 | .001 | .000 |
| | 3 | 1.000 | 1.000 | 1.000 | .993 | .984 | .969 | .913 | .812 | .663 | .472 | .367 | .263 | .081 | .023 | .001 |
| | 4 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .998 | .990 | .969 | .922 | .832 | .763 | .672 | .410 | .226 | .049 |

### b.  $n = 10$

| | | 0.01 | 0.05 | 0.10 | 0.20 | 0.25 | 0.30 | 0.40 | 0.50 | 0.60 | 0.70 | 0.75 | 0.80 | 0.90 | 0.95 | 0.99 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | *p* | | | | | | |
| | 0 | .904 | .599 | .349 | .107 | .056 | .028 | .006 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 1 | .996 | .914 | .736 | .376 | .244 | .149 | .046 | .011 | .002 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 2 | 1.000 | .988 | .930 | .678 | .526 | .383 | .167 | .055 | .012 | .002 | .000 | .000 | .000 | .000 | .000 |
| | 3 | 1.000 | .999 | .987 | .879 | .776 | .650 | .382 | .172 | .055 | .011 | .004 | .001 | .000 | .000 | .000 |
| | 4 | 1.000 | 1.000 | .998 | .967 | .922 | .850 | .633 | .377 | .166 | .047 | .020 | .006 | .000 | .000 | .000 |
| *x* | 5 | 1.000 | 1.000 | 1.000 | .994 | .980 | .953 | .834 | .623 | .367 | .150 | .078 | .033 | .002 | .000 | .000 |
| | 6 | 1.000 | 1.000 | 1.000 | .999 | .996 | .989 | .945 | .828 | .618 | .350 | .224 | .121 | .013 | .001 | .000 |
| | 7 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .998 | .988 | .945 | .833 | .617 | .474 | .322 | .070 | .012 | .000 |
| | 8 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .998 | .989 | .954 | .851 | .756 | .624 | .264 | .086 | .004 |
| | 9 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .994 | .972 | .944 | .893 | .651 | .401 | .096 |

### c.  $n = 15$

| | | 0.01 | 0.05 | 0.10 | 0.20 | 0.25 | 0.30 | 0.40 | 0.50 | 0.60 | 0.70 | 0.75 | 0.80 | 0.90 | 0.95 | 0.99 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | *p* | | | | | | |
| | 0 | .860 | .463 | .206 | .035 | .013 | .005 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 1 | .990 | .829 | .549 | .167 | .080 | .035 | .005 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 2 | 1.000 | .964 | .816 | .398 | .236 | .127 | .027 | .004 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 3 | 1.000 | .995 | .944 | .648 | .461 | .297 | .091 | .018 | .002 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 4 | 1.000 | .999 | .987 | .836 | .686 | .515 | .217 | .059 | .009 | .001 | .000 | .000 | .000 | .000 | .000 |
| | 5 | 1.000 | 1.000 | .998 | .939 | .852 | .722 | .403 | .151 | .034 | .004 | .001 | .000 | .000 | .000 | .000 |
| | 6 | 1.000 | 1.000 | 1.000 | .982 | .943 | .869 | .610 | .304 | .095 | .015 | .004 | .001 | .000 | .000 | .000 |
| *x* | 7 | 1.000 | 1.000 | 1.000 | .996 | .983 | .950 | .787 | .500 | .213 | .050 | .017 | .004 | .000 | .000 | .000 |
| | 8 | 1.000 | 1.000 | 1.000 | .999 | .996 | .985 | .905 | .696 | .390 | .131 | .057 | .018 | .000 | .000 | .000 |
| | 9 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .996 | .966 | .849 | .597 | .278 | .148 | .061 | .002 | .000 | .000 |
| | 10 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .991 | .941 | .783 | .485 | .314 | .164 | .013 | .001 | .000 |
| | 11 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .998 | .982 | .909 | .703 | .539 | .352 | .056 | .005 | .000 |
| | 12 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .996 | .973 | .873 | .764 | .602 | .184 | .036 | .000 |
| | 13 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .995 | .965 | .920 | .833 | .451 | .171 | .010 |
| | 14 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .995 | .987 | .965 | .794 | .537 | .140 |

*(continued)*

## Table A.1  Cumulative Binomial Probabilities *(cont.)*

$$B(x; n, p) = \sum_{y=0}^{x} b(y; n, p)$$

d.  *n* = 20

| | | | | | | | | | *p* | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.01 | 0.05 | 0.10 | 0.20 | 0.25 | 0.30 | 0.40 | 0.50 | 0.60 | 0.70 | 0.75 | 0.80 | 0.90 | 0.95 | 0.99 |
| | 0 | .818 | .358 | .122 | .012 | .003 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 1 | .983 | .736 | .392 | .069 | .024 | .008 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 2 | .999 | .925 | .677 | .206 | .091 | .035 | .004 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 3 | 1.000 | .984 | .867 | .411 | .225 | .107 | .016 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 4 | 1.000 | .997 | .957 | .630 | .415 | .238 | .051 | .006 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 5 | 1.000 | 1.000 | .989 | .804 | .617 | .416 | .126 | .021 | .002 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 6 | 1.000 | 1.000 | .998 | .913 | .786 | .608 | .250 | .058 | .006 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 7 | 1.000 | 1.000 | 1.000 | .968 | .898 | .772 | .416 | .132 | .021 | .001 | .000 | .000 | .000 | .000 | .000 |
| | 8 | 1.000 | 1.000 | 1.000 | .990 | .959 | .887 | .596 | .252 | .057 | .005 | .001 | .000 | .000 | .000 | .000 |
| | 9 | 1.000 | 1.000 | 1.000 | .997 | .986 | .952 | .755 | .412 | .128 | .017 | .004 | .001 | .000 | .000 | .000 |
| *x* | 10 | 1.000 | 1.000 | 1.000 | .999 | .996 | .983 | .872 | .588 | .245 | .048 | .014 | .003 | .000 | .000 | .000 |
| | 11 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .995 | .943 | .748 | .404 | .113 | .041 | .010 | .000 | .000 | .000 |
| | 12 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .979 | .868 | .584 | .228 | .102 | .032 | .000 | .000 | .000 |
| | 13 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .994 | .942 | .750 | .392 | .214 | .087 | .002 | .000 | .000 |
| | 14 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .998 | .979 | .874 | .584 | .383 | .196 | .011 | .000 | .000 |
| | 15 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .994 | .949 | .762 | .585 | .370 | .043 | .003 | .000 |
| | 16 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .984 | .893 | .775 | .589 | .133 | .016 | .000 |
| | 17 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .996 | .965 | .909 | .794 | .323 | .075 | .001 |
| | 18 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .992 | .976 | .931 | .608 | .264 | .017 |
| | 19 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .997 | .988 | .878 | .642 | .182 |

*(continued)*

## Table A.1    Cumulative Binomial Probabilities *(cont.)*

$$B(x; n, p) = \sum_{y=0}^{x} b(y; n, p)$$

**e.  n = 25**

| | | p | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0.01 | 0.05 | 0.10 | 0.20 | 0.25 | 0.30 | 0.40 | 0.50 | 0.60 | 0.70 | 0.75 | 0.80 | 0.90 | 0.95 | 0.99 |
| | 0 | .778 | .277 | .072 | .004 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 1 | .974 | .642 | .271 | .027 | .007 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 2 | .998 | .873 | .537 | .098 | .032 | .009 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 3 | 1.000 | .966 | .764 | .234 | .096 | .033 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 4 | 1.000 | .993 | .902 | .421 | .214 | .090 | .009 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 5 | 1.000 | .999 | .967 | .617 | .378 | .193 | .029 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 6 | 1.000 | 1.000 | .991 | .780 | .561 | .341 | .074 | .007 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 7 | 1.000 | 1.000 | .998 | .891 | .727 | .512 | .154 | .022 | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 8 | 1.000 | 1.000 | 1.000 | .953 | .851 | .677 | .274 | .054 | .004 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 9 | 1.000 | 1.000 | 1.000 | .983 | .929 | .811 | .425 | .115 | .013 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 10 | 1.000 | 1.000 | 1.000 | .994 | .970 | .902 | .586 | .212 | .034 | .002 | .000 | .000 | .000 | .000 | .000 |
| | 11 | 1.000 | 1.000 | 1.000 | .998 | .980 | .956 | .732 | .345 | .078 | .006 | .001 | .000 | .000 | .000 | .000 |
| x | 12 | 1.000 | 1.000 | 1.000 | 1.000 | .997 | .983 | .846 | .500 | .154 | .017 | .003 | .000 | .000 | .000 | .000 |
| | 13 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .994 | .922 | .655 | .268 | .044 | .020 | .002 | .000 | .000 | .000 |
| | 14 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .998 | .966 | .788 | .414 | .098 | .030 | .006 | .000 | .000 | .000 |
| | 15 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .987 | .885 | .575 | .189 | .071 | .017 | .000 | .000 | .000 |
| | 16 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .996 | .946 | .726 | .323 | .149 | .047 | .000 | .000 | .000 |
| | 17 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .978 | .846 | .488 | .273 | .109 | .002 | .000 | .000 |
| | 18 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .993 | .926 | .659 | .439 | .220 | .009 | .000 | .000 |
| | 19 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .998 | .971 | .807 | .622 | .383 | .033 | .001 | .000 |
| | 20 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .991 | .910 | .786 | .579 | .098 | .007 | .000 |
| | 21 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .998 | .967 | .904 | .766 | .236 | .034 | .000 |
| | 22 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .991 | .968 | .902 | .463 | .127 | .002 |
| | 23 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .998 | .993 | .973 | .729 | .358 | .026 |
| | 24 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | .999 | .996 | .928 | .723 | .222 |

## Table A.2    Cumulative Poisson Probabilities

$$F(x; \mu) = \sum_{y=0}^{x} \frac{e^{-\mu} \mu^y}{y!}$$

| | | μ | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | .1 | .2 | .3 | .4 | .5 | .6 | .7 | .8 | .9 | 1.0 |
| | 0 | .905 | .819 | .741 | .670 | .607 | .549 | .497 | .449 | .407 | .368 |
| | 1 | .995 | .982 | .963 | .938 | .910 | .878 | .844 | .809 | .772 | .736 |
| | 2 | 1.000 | .999 | .996 | .992 | .986 | .977 | .966 | .953 | .937 | .920 |
| x | 3 | | 1.000 | 1.000 | .999 | .998 | .997 | .994 | .991 | .987 | .981 |
| | 4 | | | | 1.000 | 1.000 | 1.000 | .999 | .999 | .998 | .996 |
| | 5 | | | | | | | 1.000 | 1.000 | 1.000 | .999 |
| | 6 | | | | | | | | | | 1.000 |

*(continued)*

**Table A.2    Cumulative Poisson Probabilities *(cont.)***

$$F(x; \mu) = \sum_{y=0}^{x} \frac{e^{-\mu}\mu^y}{y!}$$

| | | | | | | $\mu$ | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2.0** | **3.0** | **4.0** | **5.0** | **6.0** | **7.0** | **8.0** | **9.0** | **10.0** | **15.0** | **20.0** |
| 0 | .135 | .050 | .018 | .007 | .002 | .001 | .000 | .000 | .000 | .000 | .000 |
| 1 | .406 | .199 | .092 | .040 | .017 | .007 | .003 | .001 | .000 | .000 | .000 |
| 2 | .677 | .423 | .238 | .125 | .062 | .030 | .014 | .006 | .003 | .000 | .000 |
| 3 | .857 | .647 | .433 | .265 | .151 | .082 | .042 | .021 | .010 | .000 | .000 |
| 4 | .947 | .815 | .629 | .440 | .285 | .173 | .100 | .055 | .029 | .001 | .000 |
| 5 | .983 | .916 | .785 | .616 | .446 | .301 | .191 | .116 | .067 | .003 | .000 |
| 6 | .995 | .966 | .889 | .762 | .606 | .450 | .313 | .207 | .130 | .008 | .000 |
| 7 | .999 | .988 | .949 | .867 | .744 | .599 | .453 | .324 | .220 | .018 | .001 |
| 8 | 1.000 | .996 | .979 | .932 | .847 | .729 | .593 | .456 | .333 | .037 | .002 |
| 9 | | .999 | .992 | .968 | .916 | .830 | .717 | .587 | .458 | .070 | .005 |
| 10 | | 1.000 | .997 | .986 | .957 | .901 | .816 | .706 | .583 | .118 | .011 |
| 11 | | | .999 | .995 | .980 | .947 | .888 | .803 | .697 | .185 | .021 |
| 12 | | | 1.000 | .998 | .991 | .973 | .936 | .876 | .792 | .268 | .039 |
| 13 | | | | .999 | .996 | .987 | .966 | .926 | .864 | .363 | .066 |
| 14 | | | | 1.000 | .999 | .994 | .983 | .959 | .917 | .466 | .105 |
| 15 | | | | | .999 | .998 | .992 | .978 | .951 | .568 | .157 |
| 16 | | | | | 1.000 | .999 | .996 | .989 | .973 | .664 | .221 |
| 17 | | | | | | 1.000 | .998 | .995 | .986 | .749 | .297 |
| 18 | | | | | | | .999 | .998 | .993 | .819 | .381 |
| 19 | | | | | | | 1.000 | .999 | .997 | .875 | .470 |
| 20 | | | | | | | | 1.000 | .998 | .917 | .559 |
| 21 | | | | | | | | | .999 | .947 | .644 |
| 22 | | | | | | | | | 1.000 | .967 | .721 |
| 23 | | | | | | | | | | .981 | .787 |
| 24 | | | | | | | | | | .989 | .843 |
| 25 | | | | | | | | | | .994 | .888 |
| 26 | | | | | | | | | | .997 | .922 |
| 27 | | | | | | | | | | .998 | .948 |
| 28 | | | | | | | | | | .999 | .966 |
| 29 | | | | | | | | | | 1.000 | .978 |
| 30 | | | | | | | | | | | .987 |
| 31 | | | | | | | | | | | .992 |
| 32 | | | | | | | | | | | .995 |
| 33 | | | | | | | | | | | .997 |
| 34 | | | | | | | | | | | .999 |
| 35 | | | | | | | | | | | .999 |
| 36 | | | | | | | | | | | 1.000 |

*x* is the row label at the left of the table.