## Table A2. Binomial distribution

$$F(x) = \boldsymbol{P}\left\{X \leq x\right\} = \sum_{k=0}^{x} \binom{n}{k} p^k (1-p)^{n-k}$$

| n | x | .050 | .100 | .150 | .200 | .250 | .300 | .350 | .400 | .450 | .500 | .550 | .600 | .650 | .700 | .750 | .800 | .850 | .900 | .950 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | .950 | .900 | .850 | .800 | .750 | .700 | .650 | .600 | .550 | .500 | .450 | .400 | .350 | .300 | .250 | .200 | .150 | .100 | .050 |
| 2 | 0 | .903 | .810 | .723 | .640 | .563 | .490 | .423 | .360 | .303 | .250 | .203 | .160 | .123 | .090 | .063 | .040 | .023 | .010 | .003 |
|   | 1 | .998 | .990 | .978 | .960 | .938 | .910 | .878 | .840 | .798 | .750 | .698 | .640 | .578 | .510 | .438 | .360 | .278 | .190 | .098 |
| 3 | 0 | .857 | .729 | .614 | .512 | .422 | .343 | .275 | .216 | .166 | .125 | .091 | .064 | .043 | .027 | .016 | .008 | .003 | .001 | .000 |
|   | 1 | .993 | .972 | .939 | .896 | .844 | .784 | .718 | .648 | .575 | .500 | .425 | .352 | .282 | .216 | .156 | .104 | .061 | .028 | .007 |
|   | 2 | 1.0 | .999 | .997 | .992 | .984 | .973 | .957 | .936 | .909 | .875 | .834 | .784 | .725 | .657 | .578 | .488 | .386 | .271 | .143 |
| 4 | 0 | .815 | .656 | .522 | .410 | .316 | .240 | .179 | .130 | .092 | .063 | .041 | .026 | .015 | .008 | .004 | .002 | .001 | .000 | .000 |
|   | 1 | .986 | .948 | .890 | .819 | .738 | .652 | .563 | .475 | .391 | .313 | .241 | .179 | .126 | .084 | .051 | .027 | .012 | .004 | .000 |
|   | 2 | 1.0 | .996 | .988 | .973 | .949 | .916 | .874 | .821 | .759 | .688 | .609 | .525 | .437 | .348 | .262 | .181 | .110 | .052 | .014 |
|   | 3 | 1.0 | 1.0 | .999 | .998 | .996 | .992 | .985 | .974 | .959 | .938 | .908 | .870 | .821 | .760 | .684 | .590 | .478 | .344 | .185 |
| 5 | 0 | .774 | .590 | .444 | .328 | .237 | .168 | .116 | .078 | .050 | .031 | .018 | .010 | .005 | .002 | .001 | .000 | .000 | .000 | .000 |
|   | 1 | .977 | .919 | .835 | .737 | .633 | .528 | .428 | .337 | .256 | .188 | .131 | .087 | .054 | .031 | .016 | .007 | .002 | .000 | .000 |
|   | 2 | .999 | .991 | .973 | .942 | .896 | .837 | .765 | .683 | .593 | .500 | .407 | .317 | .235 | .163 | .104 | .058 | .027 | .009 | .001 |
|   | 3 | 1.0 | 1.0 | .998 | .993 | .984 | .969 | .946 | .913 | .869 | .813 | .744 | .663 | .572 | .472 | .367 | .263 | .165 | .081 | .023 |
|   | 4 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .995 | .990 | .982 | .969 | .950 | .922 | .884 | .832 | .763 | .672 | .556 | .410 | .226 |
| 6 | 0 | .735 | .531 | .377 | .262 | .178 | .118 | .075 | .047 | .028 | .016 | .008 | .004 | .002 | .001 | .000 | .000 | .000 | .000 | .000 |
|   | 1 | .967 | .886 | .776 | .655 | .534 | .420 | .319 | .233 | .164 | .109 | .069 | .041 | .022 | .011 | .005 | .002 | .000 | .000 | .000 |
|   | 2 | .998 | .984 | .953 | .901 | .831 | .744 | .647 | .544 | .442 | .344 | .255 | .179 | .117 | .070 | .038 | .017 | .006 | .001 | .000 |
|   | 3 | 1.0 | .999 | .994 | .983 | .962 | .930 | .883 | .821 | .745 | .656 | .558 | .456 | .353 | .256 | .169 | .099 | .047 | .016 | .002 |
|   | 4 | 1.0 | 1.0 | 1.0 | .998 | .995 | .989 | .978 | .959 | .931 | .891 | .836 | .767 | .681 | .580 | .466 | .345 | .224 | .114 | .033 |
|   | 5 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .996 | .992 | .984 | .972 | .953 | .925 | .882 | .822 | .738 | .623 | .469 | .265 |
| 7 | 0 | .698 | .478 | .321 | .210 | .133 | .082 | .049 | .028 | .015 | .008 | .004 | .002 | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
|   | 1 | .956 | .850 | .717 | .577 | .445 | .329 | .234 | .159 | .102 | .063 | .036 | .019 | .009 | .004 | .001 | .000 | .000 | .000 | .000 |
|   | 2 | .996 | .974 | .926 | .852 | .756 | .647 | .532 | .420 | .316 | .227 | .153 | .096 | .056 | .029 | .013 | .005 | .001 | .000 | .000 |
|   | 3 | 1.0 | .997 | .988 | .967 | .929 | .874 | .800 | .710 | .608 | .500 | .392 | .290 | .200 | .126 | .071 | .033 | .012 | .003 | .000 |
|   | 4 | 1.0 | 1.0 | .999 | .995 | .987 | .971 | .944 | .904 | .847 | .773 | .684 | .580 | .468 | .353 | .244 | .148 | .074 | .026 | .004 |
|   | 5 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .991 | .981 | .964 | .938 | .898 | .841 | .766 | .671 | .555 | .423 | .283 | .150 | .044 |
|   | 6 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .996 | .992 | .985 | .972 | .951 | .918 | .867 | .790 | .679 | .522 | .302 |
| 8 | 0 | .663 | .430 | .272 | .168 | .100 | .058 | .032 | .017 | .008 | .004 | .002 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|   | 1 | .943 | .813 | .657 | .503 | .367 | .255 | .169 | .106 | .063 | .035 | .018 | .009 | .004 | .001 | .000 | .000 | .000 | .000 | .000 |
|   | 2 | .994 | .962 | .895 | .797 | .679 | .552 | .428 | .315 | .220 | .145 | .088 | .050 | .025 | .011 | .004 | .001 | .000 | .000 | .000 |
|   | 3 | 1.0 | .995 | .979 | .944 | .886 | .806 | .706 | .594 | .477 | .363 | .260 | .174 | .106 | .058 | .027 | .010 | .003 | .000 | .000 |
|   | 4 | 1.0 | 1.0 | .997 | .990 | .973 | .942 | .894 | .826 | .740 | .637 | .523 | .406 | .294 | .194 | .114 | .056 | .021 | .005 | .000 |
|   | 5 | 1.0 | 1.0 | 1.0 | .999 | .996 | .989 | .975 | .950 | .912 | .855 | .780 | .685 | .572 | .448 | .321 | .203 | .105 | .038 | .006 |
|   | 6 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .991 | .982 | .965 | .937 | .894 | .831 | .745 | .633 | .497 | .343 | .187 | .057 |
|   | 7 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .996 | .992 | .983 | .968 | .942 | .900 | .832 | .728 | .570 | .337 |
| 9 | 0 | .630 | .387 | .232 | .134 | .075 | .040 | .021 | .010 | .005 | .002 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|   | 1 | .929 | .775 | .599 | .436 | .300 | .196 | .121 | .071 | .039 | .020 | .009 | .004 | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
|   | 2 | .992 | .947 | .859 | .738 | .601 | .463 | .337 | .232 | .150 | .090 | .050 | .025 | .011 | .004 | .001 | .000 | .000 | .000 | .000 |
|   | 3 | .999 | .992 | .966 | .914 | .834 | .730 | .609 | .483 | .361 | .254 | .166 | .099 | .054 | .025 | .010 | .003 | .001 | .000 | .000 |
|   | 4 | 1.0 | .999 | .994 | .980 | .951 | .901 | .828 | .733 | .621 | .500 | .379 | .267 | .172 | .099 | .049 | .020 | .006 | .001 | .000 |
|   | 5 | 1.0 | 1.0 | .999 | .997 | .990 | .975 | .946 | .901 | .834 | .746 | .639 | .517 | .391 | .270 | .166 | .086 | .034 | .008 | .001 |
|   | 6 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .989 | .975 | .950 | .910 | .850 | .768 | .663 | .537 | .399 | .262 | .141 | .053 | .008 |
|   | 7 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .991 | .980 | .961 | .929 | .879 | .804 | .700 | .564 | .401 | .225 | .071 |
|   | 8 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .995 | .990 | .979 | .960 | .925 | .866 | .768 | .613 | .370 |
| 10 | 0 | .599 | .349 | .197 | .107 | .056 | .028 | .013 | .006 | .003 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|   | 1 | .914 | .736 | .544 | .376 | .244 | .149 | .086 | .046 | .023 | .011 | .005 | .002 | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
|   | 2 | .988 | .930 | .820 | .678 | .526 | .383 | .262 | .167 | .100 | .055 | .027 | .012 | .005 | .002 | .000 | .000 | .000 | .000 | .000 |
|   | 3 | .999 | .987 | .950 | .879 | .776 | .650 | .514 | .382 | .266 | .172 | .102 | .055 | .026 | .011 | .004 | .001 | .000 | .000 | .000 |
|   | 4 | 1.0 | .998 | .990 | .967 | .922 | .850 | .751 | .633 | .504 | .377 | .262 | .166 | .095 | .047 | .020 | .006 | .001 | .000 | .000 |
|   | 5 | 1.0 | 1.0 | .999 | .994 | .980 | .953 | .905 | .834 | .738 | .623 | .496 | .367 | .249 | .150 | .078 | .033 | .010 | .002 | .000 |
|   | 6 | 1.0 | 1.0 | 1.0 | .999 | .996 | .989 | .974 | .945 | .898 | .828 | .734 | .618 | .486 | .350 | .224 | .121 | .050 | .013 | .001 |
|   | 7 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .995 | .988 | .973 | .945 | .900 | .833 | .738 | .617 | .474 | .322 | .180 | .070 | .012 |
|   | 8 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .995 | .989 | .977 | .954 | .914 | .851 | .756 | .624 | .456 | .264 | .086 |
|   | 9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .997 | .994 | .987 | .972 | .944 | .893 | .803 | .651 | .401 |

## Table A2, continued. Binomial distribution

| n | x | .050 | .100 | .150 | .200 | .250 | .300 | .350 | .400 | .450 | .500 | .550 | .600 | .650 | .700 | .750 | .800 | .850 | .900 | .950 |
|---|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 11 | 0 | .569 | .314 | .167 | .086 | .042 | .020 | .009 | .004 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 1 | .898 | .697 | .492 | .322 | .197 | .113 | .061 | .030 | .014 | .006 | .002 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 2 | .985 | .910 | .779 | .617 | .455 | .313 | .200 | .119 | .065 | .033 | .015 | .006 | .002 | .001 | .000 | .000 | .000 | .000 | .000 |
| | 3 | .998 | .981 | .931 | .839 | .713 | .570 | .426 | .296 | .191 | .113 | .061 | .029 | .012 | .004 | .001 | .000 | .000 | .000 | .000 |
| | 4 | 1.0 | .997 | .984 | .950 | .885 | .790 | .668 | .533 | .397 | .274 | .174 | .099 | .050 | .022 | .008 | .002 | .000 | .000 | .000 |
| | 5 | 1.0 | 1.0 | .997 | .988 | .966 | .922 | .851 | .753 | .633 | .500 | .367 | .247 | .149 | .078 | .034 | .012 | .003 | .000 | .000 |
| | 6 | 1.0 | 1.0 | 1.0 | .998 | .992 | .978 | .950 | .901 | .826 | .726 | .603 | .467 | .332 | .210 | .115 | .050 | .016 | .003 | .000 |
| | 7 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .988 | .971 | .939 | .887 | .809 | .704 | .574 | .430 | .287 | .161 | .069 | .019 | .002 |
| | 8 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .994 | .985 | .967 | .935 | .881 | .800 | .687 | .545 | .383 | .221 | .090 | .015 |
| | 9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .994 | .986 | .970 | .939 | .887 | .803 | .678 | .508 | .303 | .102 |
| | 10 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .991 | .980 | .958 | .914 | .833 | .686 | .431 |
| 12 | 0 | .540 | .282 | .142 | .069 | .032 | .014 | .006 | .002 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 1 | .882 | .659 | .443 | .275 | .158 | .085 | .042 | .020 | .008 | .003 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 2 | .980 | .889 | .736 | .558 | .391 | .253 | .151 | .083 | .042 | .019 | .008 | .003 | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 3 | .998 | .974 | .908 | .795 | .649 | .493 | .347 | .225 | .134 | .073 | .036 | .015 | .006 | .002 | .000 | .000 | .000 | .000 | .000 |
| | 4 | 1.0 | .996 | .976 | .927 | .842 | .724 | .583 | .438 | .304 | .194 | .112 | .057 | .026 | .009 | .003 | .001 | .000 | .000 | .000 |
| | 5 | 1.0 | .999 | .995 | .981 | .946 | .882 | .787 | .665 | .527 | .387 | .261 | .158 | .085 | .039 | .014 | .004 | .001 | .000 | .000 |
| | 6 | 1.0 | 1.0 | .999 | .996 | .986 | .961 | .915 | .842 | .739 | .613 | .473 | .335 | .213 | .118 | .054 | .019 | .005 | .001 | .000 |
| | 7 | 1.0 | 1.0 | 1.0 | .999 | .997 | .991 | .974 | .943 | .888 | .806 | .696 | .562 | .417 | .276 | .158 | .073 | .024 | .004 | .000 |
| | 8 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .994 | .985 | .964 | .927 | .866 | .775 | .653 | .507 | .351 | .205 | .092 | .026 | .002 |
| | 9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .997 | .992 | .981 | .958 | .917 | .849 | .747 | .609 | .442 | .264 | .111 | .020 |
| | 10 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .997 | .992 | .980 | .958 | .915 | .842 | .725 | .557 | .341 | .118 |
| | 11 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .994 | .986 | .968 | .931 | .858 | .718 | .460 |
| 13 | 0 | .513 | .254 | .121 | .055 | .024 | .010 | .004 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 1 | .865 | .621 | .398 | .234 | .127 | .064 | .030 | .013 | .005 | .002 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 2 | .975 | .866 | .692 | .502 | .333 | .202 | .113 | .058 | .027 | .011 | .004 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 3 | .997 | .966 | .882 | .747 | .584 | .421 | .278 | .169 | .093 | .046 | .020 | .008 | .003 | .001 | .000 | .000 | .000 | .000 | .000 |
| | 4 | 1.0 | .994 | .966 | .901 | .794 | .654 | .501 | .353 | .228 | .133 | .070 | .032 | .013 | .004 | .001 | .000 | .000 | .000 | .000 |
| | 5 | 1.0 | .999 | .992 | .970 | .920 | .835 | .716 | .574 | .427 | .291 | .179 | .098 | .046 | .018 | .006 | .001 | .000 | .000 | .000 |
| | 6 | 1.0 | 1.0 | .999 | .993 | .976 | .938 | .871 | .771 | .644 | .500 | .356 | .229 | .129 | .062 | .024 | .007 | .001 | .000 | .000 |
| | 7 | 1.0 | 1.0 | 1.0 | .999 | .994 | .982 | .954 | .902 | .821 | .709 | .573 | .426 | .284 | .165 | .080 | .030 | .008 | .001 | .000 |
| | 8 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .987 | .968 | .930 | .867 | .772 | .647 | .499 | .346 | .206 | .099 | .034 | .006 | .000 |
| | 9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .997 | .992 | .980 | .954 | .907 | .831 | .722 | .579 | .416 | .253 | .118 | .034 | .003 |
| | 10 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .989 | .973 | .942 | .887 | .798 | .667 | .498 | .308 | .134 | .025 |
| | 11 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .995 | .987 | .970 | .936 | .873 | .766 | .602 | .379 | .135 |
| | 12 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .990 | .976 | .945 | .879 | .746 | .487 |
| 14 | 0 | .488 | .229 | .103 | .044 | .018 | .007 | .002 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 1 | .847 | .585 | .357 | .198 | .101 | .047 | .021 | .008 | .003 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 2 | .970 | .842 | .648 | .448 | .281 | .161 | .084 | .040 | .017 | .006 | .002 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 3 | .996 | .956 | .853 | .698 | .521 | .355 | .220 | .124 | .063 | .029 | .011 | .004 | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 4 | 1.0 | .991 | .953 | .870 | .742 | .584 | .423 | .279 | .167 | .090 | .043 | .018 | .006 | .002 | .000 | .000 | .000 | .000 | .000 |
| | 5 | 1.0 | .999 | .988 | .956 | .888 | .781 | .641 | .486 | .337 | .212 | .119 | .058 | .024 | .008 | .002 | .000 | .000 | .000 | .000 |
| | 6 | 1.0 | 1.0 | .998 | .988 | .962 | .907 | .816 | .692 | .546 | .395 | .259 | .150 | .075 | .031 | .010 | .002 | .000 | .000 | .000 |
| | 7 | 1.0 | 1.0 | 1.0 | .998 | .990 | .969 | .925 | .850 | .741 | .605 | .454 | .308 | .184 | .093 | .038 | .012 | .002 | .000 | .000 |
| | 8 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .992 | .976 | .942 | .881 | .788 | .663 | .514 | .359 | .219 | .112 | .044 | .012 | .001 | .000 |
| | 9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .994 | .982 | .957 | .910 | .833 | .721 | .577 | .416 | .258 | .130 | .047 | .009 | .000 |
| | 10 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .989 | .971 | .937 | .876 | .780 | .645 | .479 | .302 | .147 | .044 | .004 |
| | 11 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .994 | .983 | .960 | .916 | .839 | .719 | .552 | .352 | .158 | .030 |
| | 12 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .997 | .992 | .979 | .953 | .899 | .802 | .643 | .415 | .153 |
| | 13 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .993 | .982 | .956 | .897 | .771 | .512 |
| 15 | 0 | .463 | .206 | .087 | .035 | .013 | .005 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 1 | .829 | .549 | .319 | .167 | .080 | .035 | .014 | .005 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 2 | .964 | .816 | .604 | .398 | .236 | .127 | .062 | .027 | .011 | .004 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 3 | .995 | .944 | .823 | .648 | .461 | .297 | .173 | .091 | .042 | .018 | .006 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 4 | .999 | .987 | .938 | .836 | .686 | .515 | .352 | .217 | .120 | .059 | .025 | .009 | .003 | .001 | .000 | .000 | .000 | .000 | .000 |
| | 5 | 1.0 | .998 | .983 | .939 | .852 | .722 | .564 | .403 | .261 | .151 | .077 | .034 | .012 | .004 | .001 | .000 | .000 | .000 | .000 |
| | 6 | 1.0 | 1.0 | .996 | .982 | .943 | .869 | .755 | .610 | .452 | .304 | .182 | .095 | .042 | .015 | .004 | .001 | .000 | .000 | .000 |
| | 7 | 1.0 | 1.0 | .999 | .996 | .983 | .950 | .887 | .787 | .654 | .500 | .346 | .213 | .113 | .050 | .017 | .004 | .001 | .000 | .000 |
| | 8 | 1.0 | 1.0 | 1.0 | .999 | .996 | .985 | .958 | .905 | .818 | .696 | .548 | .390 | .245 | .131 | .057 | .018 | .004 | .000 | .000 |
| | 9 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .988 | .966 | .923 | .849 | .739 | .597 | .436 | .278 | .148 | .061 | .017 | .002 | .000 |
| | 10 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .997 | .991 | .975 | .941 | .880 | .783 | .648 | .485 | .314 | .164 | .062 | .013 | .001 |
| | 11 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .994 | .982 | .958 | .909 | .827 | .703 | .539 | .352 | .177 | .056 | .005 |
| | 12 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .989 | .973 | .938 | .873 | .764 | .602 | .396 | .184 | .036 |
| | 13 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .995 | .986 | .965 | .920 | .833 | .681 | .451 | .171 |
| | 14 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .995 | .987 | .965 | .913 | .794 | .537 |

## Table A2, continued. Binomial distribution

| n | x | .050 | .100 | .150 | .200 | .250 | .300 | .350 | .400 | .450 | .500 | .550 | .600 | .650 | .700 | .750 | .800 | .850 | .900 | .950 |
|---|---|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 16 | 1 | .811 | .515 | .284 | .141 | .063 | .026 | .010 | .003 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 2 | .957 | .789 | .561 | .352 | .197 | .099 | .045 | .018 | .007 | .002 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 3 | .993 | .932 | .790 | .598 | .405 | .246 | .134 | .065 | .028 | .011 | .003 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 4 | .999 | .983 | .921 | .798 | .630 | .450 | .289 | .167 | .085 | .038 | .015 | .005 | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 5 | 1.0 | .997 | .976 | .918 | .810 | .660 | .490 | .329 | .198 | .105 | .049 | .019 | .006 | .002 | .000 | .000 | .000 | .000 | .000 |
|  | 6 | 1.0 | .999 | .994 | .973 | .920 | .825 | .688 | .527 | .366 | .227 | .124 | .058 | .023 | .007 | .002 | .000 | .000 | .000 | .000 |
|  | 7 | 1.0 | 1.0 | .999 | .993 | .973 | .926 | .841 | .716 | .563 | .402 | .256 | .142 | .067 | .026 | .007 | .001 | .000 | .000 | .000 |
|  | 8 | 1.0 | 1.0 | 1.0 | .999 | .993 | .974 | .933 | .858 | .744 | .598 | .437 | .284 | .159 | .074 | .027 | .007 | .001 | .000 | .000 |
|  | 9 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .993 | .977 | .942 | .876 | .773 | .634 | .473 | .312 | .175 | .080 | .027 | .006 | .001 | .000 |
|  | 10 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .994 | .981 | .951 | .895 | .802 | .671 | .510 | .340 | .190 | .082 | .024 | .003 | .000 |
|  | 11 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .995 | .985 | .962 | .915 | .833 | .711 | .550 | .370 | .202 | .079 | .017 | .001 |
|  | 12 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .997 | .989 | .972 | .935 | .866 | .754 | .595 | .402 | .210 | .068 | .007 |
|  | 13 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .998 | .993 | .982 | .955 | .901 | .803 | .648 | .439 | .211 | .043 |
|  | 14 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .997 | .990 | .974 | .937 | .859 | .716 | .485 | .189 |
|  | 15 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .997 | .990 | .972 | .926 | .815 | .560 |
| 18 | 1 | .774 | .450 | .224 | .099 | .039 | .014 | .005 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 2 | .942 | .734 | .480 | .271 | .135 | .060 | .024 | .008 | .003 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 3 | .989 | .902 | .720 | .501 | .306 | .165 | .078 | .033 | .012 | .004 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 4 | .998 | .972 | .879 | .716 | .519 | .333 | .189 | .094 | .041 | .015 | .005 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 5 | 1.0 | .994 | .958 | .867 | .717 | .534 | .355 | .209 | .108 | .048 | .018 | .006 | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 6 | 1.0 | .999 | .988 | .949 | .861 | .722 | .549 | .374 | .226 | .119 | .054 | .020 | .006 | .001 | .000 | .000 | .000 | .000 | .000 |
|  | 7 | 1.0 | 1.0 | .997 | .984 | .943 | .859 | .728 | .563 | .391 | .240 | .128 | .058 | .021 | .006 | .001 | .000 | .000 | .000 | .000 |
|  | 8 | 1.0 | 1.0 | .999 | .996 | .981 | .940 | .861 | .737 | .578 | .407 | .253 | .135 | .060 | .021 | .005 | .001 | .000 | .000 | .000 |
|  | 9 | 1.0 | 1.0 | 1.0 | .999 | .995 | .979 | .940 | .865 | .747 | .593 | .422 | .263 | .139 | .060 | .019 | .004 | .001 | .000 | .000 |
|  | 10 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .994 | .979 | .942 | .872 | .760 | .609 | .437 | .272 | .141 | .057 | .016 | .003 | .000 | .000 |
|  | 11 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .994 | .980 | .946 | .881 | .774 | .626 | .451 | .278 | .139 | .051 | .012 | .001 | .000 |
|  | 12 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .994 | .982 | .952 | .892 | .791 | .645 | .466 | .283 | .133 | .042 | .006 | .000 |
|  | 13 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .995 | .985 | .959 | .906 | .811 | .667 | .481 | .284 | .121 | .028 | .002 |
|  | 14 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .988 | .967 | .922 | .835 | .694 | .499 | .280 | .098 | .011 |
|  | 15 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .997 | .992 | .976 | .940 | .865 | .729 | .520 | .266 | .058 |
|  | 16 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .995 | .986 | .961 | .901 | .776 | .550 | .226 |
| 20 | 1 | .736 | .392 | .176 | .069 | .024 | .008 | .002 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 2 | .925 | .677 | .405 | .206 | .091 | .035 | .012 | .004 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 3 | .984 | .867 | .648 | .411 | .225 | .107 | .044 | .016 | .005 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 4 | .997 | .957 | .830 | .630 | .415 | .238 | .118 | .051 | .019 | .006 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 5 | 1.0 | .989 | .933 | .804 | .617 | .416 | .245 | .126 | .055 | .021 | .006 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 6 | 1.0 | .998 | .978 | .913 | .786 | .608 | .417 | .250 | .130 | .058 | .021 | .006 | .002 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 7 | 1.0 | 1.0 | .994 | .968 | .898 | .772 | .601 | .416 | .252 | .132 | .058 | .021 | .006 | .001 | .000 | .000 | .000 | .000 | .000 |
|  | 8 | 1.0 | 1.0 | .999 | .990 | .959 | .887 | .762 | .596 | .414 | .252 | .131 | .057 | .020 | .005 | .001 | .000 | .000 | .000 | .000 |
|  | 9 | 1.0 | 1.0 | 1.0 | .997 | .986 | .952 | .878 | .755 | .591 | .412 | .249 | .128 | .053 | .017 | .004 | .001 | .000 | .000 | .000 |
|  | 10 | 1.0 | 1.0 | 1.0 | .999 | .996 | .983 | .947 | .872 | .751 | .588 | .409 | .245 | .122 | .048 | .014 | .003 | .000 | .000 | .000 |
|  | 11 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .995 | .980 | .943 | .869 | .748 | .586 | .404 | .238 | .113 | .041 | .010 | .001 | .000 | .000 |
|  | 12 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .994 | .979 | .942 | .868 | .748 | .584 | .399 | .228 | .102 | .032 | .006 | .000 | .000 |
|  | 13 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .994 | .979 | .942 | .870 | .750 | .583 | .392 | .214 | .087 | .022 | .002 | .000 |
|  | 14 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .994 | .979 | .945 | .874 | .755 | .584 | .383 | .196 | .067 | .011 | .000 |
|  | 15 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .994 | .981 | .949 | .882 | .762 | .585 | .370 | .170 | .043 | .003 |
|  | 16 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .995 | .984 | .956 | .893 | .775 | .589 | .352 | .133 | .016 |
| 25 | 2 | .873 | .537 | .254 | .098 | .032 | .009 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 3 | .966 | .764 | .471 | .234 | .096 | .033 | .010 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 4 | .993 | .902 | .682 | .421 | .214 | .090 | .032 | .009 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 5 | .999 | .967 | .838 | .617 | .378 | .193 | .083 | .029 | .009 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 6 | 1.0 | .991 | .930 | .780 | .561 | .341 | .173 | .074 | .026 | .007 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 7 | 1.0 | .998 | .975 | .891 | .727 | .512 | .306 | .154 | .064 | .022 | .006 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 8 | 1.0 | 1.0 | .992 | .953 | .851 | .677 | .467 | .274 | .134 | .054 | .017 | .004 | .001 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 9 | 1.0 | 1.0 | .998 | .983 | .929 | .811 | .630 | .425 | .242 | .115 | .044 | .013 | .003 | .000 | .000 | .000 | .000 | .000 | .000 |
|  | 10 | 1.0 | 1.0 | 1.0 | .994 | .970 | .902 | .771 | .586 | .384 | .212 | .096 | .034 | .009 | .002 | .000 | .000 | .000 | .000 | .000 |
|  | 11 | 1.0 | 1.0 | 1.0 | .998 | .989 | .956 | .875 | .732 | .543 | .345 | .183 | .078 | .025 | .006 | .001 | .000 | .000 | .000 | .000 |
|  | 12 | 1.0 | 1.0 | 1.0 | 1.0 | .997 | .983 | .940 | .846 | .694 | .500 | .306 | .154 | .060 | .017 | .003 | .000 | .000 | .000 | .000 |
|  | 13 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .994 | .975 | .922 | .817 | .655 | .457 | .268 | .125 | .044 | .011 | .002 | .000 | .000 | .000 |
|  | 14 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .991 | .966 | .904 | .788 | .616 | .414 | .229 | .098 | .030 | .006 | .000 | .000 | .000 |
|  | 15 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .997 | .987 | .956 | .885 | .758 | .575 | .370 | .189 | .071 | .017 | .002 | .000 | .000 |
|  | 16 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .996 | .983 | .946 | .866 | .726 | .533 | .323 | .149 | .047 | .008 | .000 | .000 |
|  | 17 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .999 | .994 | .978 | .936 | .846 | .694 | .488 | .273 | .109 | .025 | .002 | .000 |
|  | 18 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .993 | .974 | .926 | .827 | .659 | .439 | .220 | .070 | .009 | .000 |
|  | 19 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .991 | .971 | .917 | .807 | .622 | .383 | .162 | .033 | .001 |
|  | 20 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | .998 | .991 | .968 | .910 | .786 | .579 | .318 | .098 | .007 |