
## *How to Calculate the Probabilities of Winning the Eight MEGA MONEY Prize Levels*

MEGA MONEY™ numbers are drawn from two sets of numbers. Four numbers are drawn from one set of 44 numbered white balls and one MEGABALL® number is drawn from the second set of 22 numbered pink balls. The odds of winning MEGA MONEY are calculated by combining the odds for both sets of numbers for all prize levels. The first, third, fifth, sixth, and eighth prize level odds are determined by the chances of choosing both numbers correctly. The second, fourth and seventh prize level odds are determined by the chances of choosing the white balls correctly and the pink MEGABALL incorrectly. Since the order of the items chosen is irrelevant the applicable probability rule is the formula to determine combinations.

**I. Top Prize Level**: ***Match all four numbers plus the MEGABALL*** (*1 in 2,986,522 odds)*

**Step 1**: Calculate the number of combinations of 4 correct out of 4 draws from 44. The formula is as follows: (! indicates a factorial)

$$\frac{44!}{4!\,(44-4)!} = \frac{44*43*42*41*40!}{4*3*2*1*40!} = \frac{44*43*42*41}{4*3*2*1} = \frac{3{,}258{,}024}{24} = 135{,}751$$

This means that there are 135,751 different ways in which 4 numbers can be chosen from a total of 44 numbers. Therefore, the chance of correctly choosing the correct four numbers in the first portion of MEGA MONEY is 1 in 135,751.

**Step 2**: Calculate the number of combinations of 1 draw from 22.
The chance of correctly choosing the MEGABALL is simply 1 in 22.

**Step 3**: Determine the chances of choosing both correctly by multiplying these figures together:

$$\frac{1}{135{,}751} * \frac{1}{22} = \frac{1}{2{,}986{,}522}$$ or 1 chance in 2,986,522.

**2. <u>Second Prize Level</u>: *Match all four numbers only*** (*1 in 142,215.33 odds)*

**Step 1**: The number of combinations of 4 correct out of 4 draws is 1 in 135,751 (see Step 1 above.)

**Step 2**: The chance of correctly choosing the MEGABALL is 1 in 22. Therefore, the chances of incorrectly choosing the MEGABALL are, conversely, 21 in 22.

**Step 3**: Determine the chances of choosing 4 out of 44 correctly <u>and</u> getting the MEGABALL incorrect by multiplying these figures together:

$$\frac{1}{135{,}751} * \frac{21}{22} = \frac{21}{2{,}986{,}522} = \frac{1}{142{,}215.33} \text{ or } 1 \text{ chance in } 142{,}215.33.$$

**3. <u>Third Prize Level</u>: *Match three numbers plus the MEGABALL*** (*1 in 18,665.76 odds)*

**Step 1**: Calculate the number of combinations of 3 correct out of 4 draws from 44. The formula is as follows:

$$\frac{4!}{3!\,(4-3)!} * \frac{(44-4)!}{((44-4)-(4-3))!\,(4-3)!} = \frac{4*3!}{3!\,1!} * \frac{40!}{(40-1)!\,1!} = \frac{4}{1} * \frac{40*39!}{39!*1} = 4*40 = 160$$

This means that there are 160 different ways in which 3 correct numbers out of 4 numbers drawn from a field of 44 numbers can be chosen. Therefore, the chance of correctly choosing 3 out of 4 numbers correctly in the first portion of MEGA MONEY is 160 in 135,751, or 1 in 848.44.

**Step 2:** The chance of correctly choosing the MEGABALL is simply 1 in 22.

**Step 3:** Determine the chances of choosing 3 out of 4 of 44 correctly and getting the MEGABALL correct by multiplying these figures together:

$$\frac{160}{135{,}751} * \frac{1}{22} = \frac{160}{2{,}986{,}522} = \frac{1}{18{,}665.76} \text{ or } 1 \text{ chance in } 18{,}665.76.$$

**4. <u>Fourth Prize Level</u>: *Match three numbers only*** (*1 in 888.85 odds)*

**Step 1**: The number of combinations of 3 correct out of 4 draws is 160 in 135,751 (see Step 1 above.)

**Step 2**: The chance of correctly choosing the MEGABALL is 1 in 22. Therefore, the chance of incorrectly choosing the MEGABALL are, conversely, 21 in 22.

**Step 3**: Determine the chances of choosing 3 out of 44 correctly <u>and</u> getting the MEGABALL incorrect by multiplying these figures together:

$$\frac{160}{135{,}751} * \frac{21}{22} = \frac{3360}{2{,}986{,}522} = \frac{1}{888.85} \text{ or } 1 \text{ chance in } 888.85.$$

**5. <u>Fifth Prize Level</u>: *Match two numbers plus the MEGABALL*** *(1 in 638.15 odds)*

**Step 1**: Calculate the number of combinations of 2 correct out of 4 draws from 44. The formula is as follows:

$$\frac{4!}{2!\,(4-2)!} * \frac{(44-4)!}{((44-4)-(4-2))!\,(4-2)!} = \frac{4*3*2!}{2!\,2!} * \frac{40!}{(40-2)!\,2!} = \frac{4*3}{2} * \frac{40*39*38!}{38!*2*1} = 6 * 780 = 4{,}680$$

This means that there are 4,680 different ways in which 2 correct numbers out of 4 numbers drawn from a field of 44 numbers can be chosen. Therefore, the chance of correctly choosing 2 out of 4 numbers correctly in the first portion of MEGA MONEY is 4,680 in 135,751, or 1 in 29.01.

**Step 2:** The chance of correctly choosing the MEGABALL is simply 1 in 22.

**Step 3:** Determine the chances of choosing 2 out of 4 of 44 correctly and getting the MEGABALL correct by multiplying these figures together:

$$\frac{4{,}680}{135{,}751} * \frac{1}{22} = \frac{4{,}680}{2{,}986{,}522} = \frac{1}{638.15} \text{ or 1 chance in } 638.15.$$

**6. <u>Sixth Prize Level</u>: *Match one number plus the MEGABALL*** *(1 in 75.57 odds)*

**Step 1**: Calculate the number of combinations of 1 correct out of 4 draws from 44. The formula is as follows:

$$\frac{4!}{1!\,(4-1)!} * \frac{(44-4)!}{((44-4)-(4-1))!\,(4-1)!} = \frac{4*3!}{1!\,3!} * \frac{40!}{(40-3)!\,3!} = \frac{4}{1} * \frac{40*39*38*37!}{37!*3*2*1} = 4 * 9{,}880 = 39{,}520$$

This means that there are 39,520 different ways in which 1 correct number out of 4 numbers drawn from a field of 44 numbers can be chosen. Therefore, the chance of correctly choosing 1 out of 4 numbers correctly in the first portion of MEGA MONEY is 39,520 in 135,751, or 1 in 3.43.

**Step 2:** The chance of correctly choosing the MEGABALL is simply 1 in 22.

**Step 3:** Determine the chances of choosing 1 out of 4 of 44 correctly and getting the MEGABALL correct by multiplying these figures together:

$$\frac{39{,}520}{} \quad \frac{1}{} \quad \frac{39{,}520}{} \quad \frac{1}{}$$

$$\frac{}{135{,}751} * \frac{}{22} = \frac{}{2{,}986{,}522} = \frac{}{75.57}$$ or 1 chance in 75.57.

**7. <u>Seventh Prize Level</u>: *Match two numbers only*** *(1 in 30.39 odds)*

**Step 1**: The number of combinations of 2 correct out of 4 draws is 4,680 in 135,751.
(see Step 1 for fifth prize level.)

**Step 2**: The chance of correctly choosing the MEGABALL is 1 in 22. Therefore, the chances of incorrectly choosing the MEGABALL are, conversely, 21 in 22.

**Step 3**: Determine the chances of choosing 2 out of 44 correctly <u>and</u> getting the MEGABALL incorrect by multiplying these figures together:

$$\frac{4{,}680}{135{,}751} * \frac{21}{22} = \frac{98{,}280}{2{,}986{,}522} = \frac{1}{30.39}$$ or 1 chance in 30.39.

**8. <u>Eighth Prize Level</u>: *Match no numbers but the MEGABALL*** (*1 in 32.68 odds)*

**Step 1**: Calculate the number of combinations of 0 correct out of 4 draws from 44. The formula is as follows:

$$\frac{4!}{0!\,(4-0)!} * \frac{(44-4)!}{((44-4)-(4-0))!\,(4-0)!} = \frac{4!}{4!} * \frac{40!}{(40-4)!\,4!} = \frac{40*39*38*37*36!}{36!*4*3*2*1} = 91{,}390$$

This means that there are 91,390 different ways in which 0 correct numbers out of 4 numbers drawn from a field of 44 numbers can be chosen. Therefore, the chance of correctly choosing 0 out of 4 numbers correctly in the first portion of MEGA MONEY is 91,390 in 135,751, or 1 in 1.49.

**Step 2:** The chance of correctly choosing the MEGABALL is simply 1 in 22.

**Step 3:** Determine the chances of choosing 0 out of 4 of 44 correctly and getting the MEGABALL correct by multiplying these figures together:

$$\frac{91{,}390}{135{,}751} * \frac{1}{22} = \frac{91{,}390}{2{,}986{,}522} = \frac{1}{32.68}$$ or 1 chance in 32.68.