

PYRAMID ADDITION SOLITAIRE — Dozenal

THIS SOLITAIRE GAME should be run on a large enough screen using the Safari or Chrome browser.

It blends luck with some planning skill and the need to add or subtract pairs of numbers. It's fun on its own and for teaching simpler aspects of arithmetic.

The versions of pyramid addition solitaire on this site are dozenal and decimal. The dozenal versions are discussed below (all numbers in dozenal, where ten is Ʒ, eleven is Ǝ, a dozen is 10, a dozen and one is 11, etc.). The decimal versions may be chosen on the main page. Both versions expand and vary traditional pyramid solitaire by allowing the player to specify the size of the deck and the tableau.

Object of the game

The object of the game is to clear out the tableau by removing cards, usually in pairs, whose values add up to the target value of the highest card in the deck.

Play of the game

When the game opens, *Deal* should be activated, for the default version. Otherwise, different choices may be made in the menus on the left.

The standard dozenal deck provides the default game. It comprises ace to 10 plus jack, queen, king: 13 cards in 4 suits (total 50). The target is 13. Because this deck has no 0, a king (value 13) has no pair and is removed on its own. A queen (12) and ace (1) are paired and removed together, jack (11) and 2, etc.

A deal creates a tableau in several overlapping rows. The first, highest row has 1 card, the next 2, the next 3, and so on. The lowest row may be complete or partial. The target is indicated on the right of the screen after a deck size is determined according to the choices in the drop-down menus on the left and after the *Deal* button is activated.

The slider sets the number of cards in the tableau, which will be between 53% and 90% of the number of cards in the deck. For the traditional deck, the tableau will have between 22 and 39 cards. The higher that number for a deck, the harder it is to win.

The remaining cards form the face-down stock, from which one card at a time is turned face up onto the discard pile as described below. When the stock is depleted, the discard pile is turned face down to become the stock again. The user chooses to run through the stock 3 times or an unlimited number of times. Being harder, the former should be tried only with a low number of cards in the tableau.

Pairs may be removed in three ways: by clicking on

- 1) two unobstructed tableau cards;
- 2) an unobstructed tableau card followed by a card immediately under it if removing the first would leave the second unobstructed;
- 3) the top in the discard pile plus an unobstructed tableau card, in either order.

Play begins with either of the first two possibilities above. At any time, and always when there are no pairs available, a card is turned over from the stock to the discard pile (by clicking on the stock). Removed pairs go face down into the foundation.

Suits are ignored. No more than two cards may be removed at a time. Removing an unpaired high card (king in the example above) from the discard pile makes the card under it available next and slightly improves the final score, which is displayed if a game is won.

Choice of decks and pairing

The size of the deck is determined by the user's choice of:

- 1) the highest pip card in a suit (9 or any number from 10 to 16);
- 2) the number of face cards in a suit (3, 4, 5, or 6);
- 3) the number of suits (4, 5, or 6);
- 4) whether the 1- and 0-cards are included (only if the ace is high).

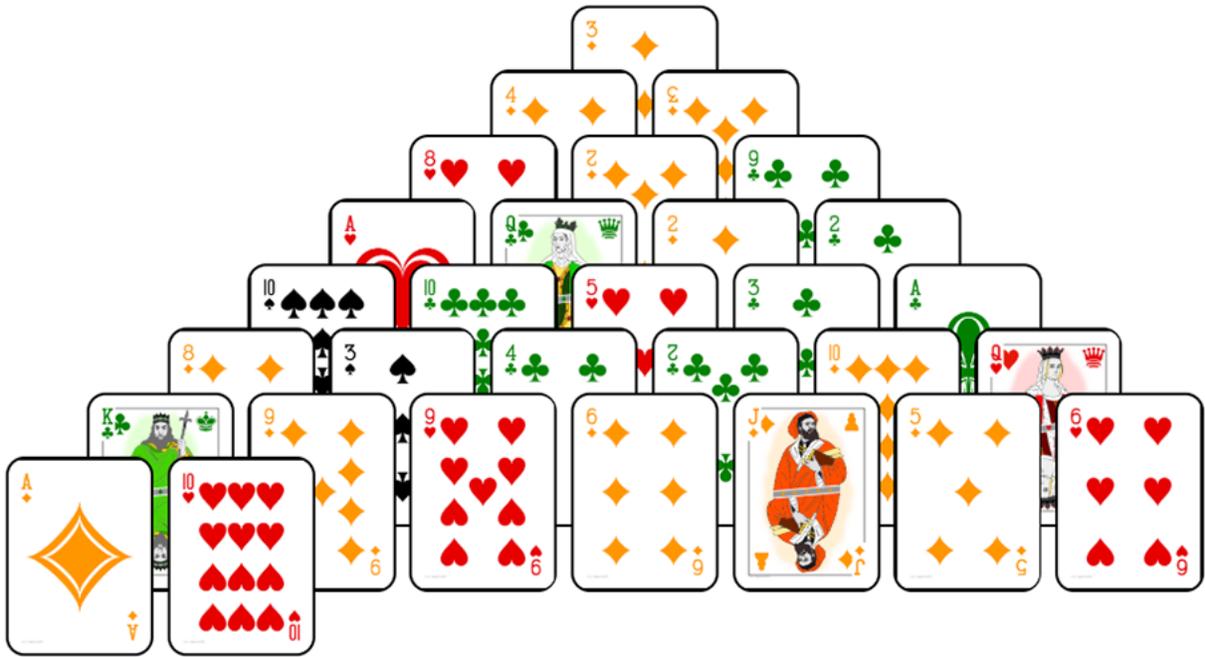
The whole deck, called *K6T*, is designed by Jean-Louis Cazaux, whose kind permission and assistance made this game possible. The face cards rank according to the usual strength of the corresponding pieces in chess, whose symbols appear with richly drawn historical and legendary figures. Beyond the usual three face cards are the knight or cavalier (abbreviation C), bishop (B), and rook or tower (T), in ascending order above the jack (pawn) and below the queen. The suits beyond the usual four are moons and stars.

For this game, the smallest deck is 40 cards, the largest 110. In the deck configuration whose lowest card is 2 and highest is the ace, for the purpose of the target value, the ace's value increases by 1. In the standard dozenal deck, if 2 ranks lowest and ace highest among 13 cards per suit, the value of the ace increases from 14 to 15. In that deck type an ace, unpaired, is removed from the tableau on its own. A king (13) and 2 are paired and removed together, queen (12) and 3, etc.

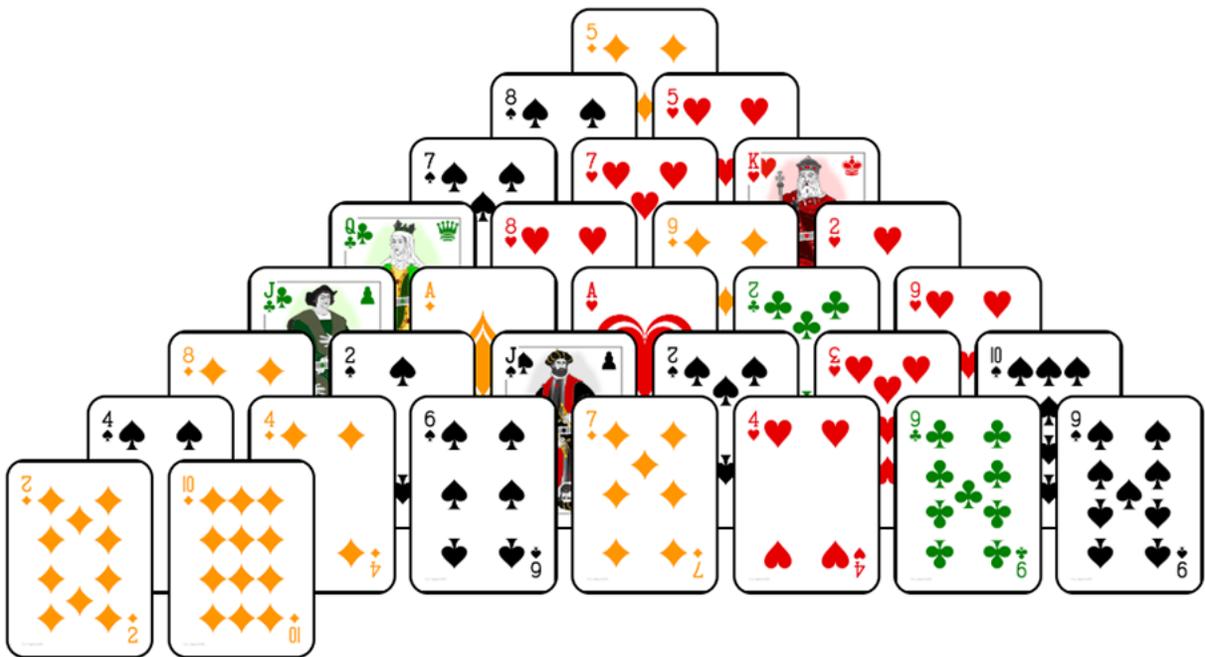
If the 0-card is included, the highest card pairs with it to be removed from the tableau or discard pile, and there is no card removed on its own. That makes the game slightly harder. Also slightly harder are games with an even-numbered target.

Strategy

1. For those less familiar with dozenal counting, the simplest deck to start with is the one with 9 pips, which limits the deck to the usual 3 face cards and 4 suits. If the deck is ordered A – K, the target for pairs is simply a dozen (10). But there are no 10-cards and no 7- or 8-cards to hesitate over. The king (value a dozen) is removed on its own, queen (eleven) and ace, jack (ten) and 2, 9 and 3, etc.
2. If there is a choice of pairing a tableau card with another tableau card or with a card on the discard pile, usually the first is better, because it clears two cards from the tableau instead of one.
3. When there is a choice of card to remove—e.g. two unobstructed 6s in the tableau and a 9 in the discard pile—usually it is better to remove the card that either uncovers two rather than one card or creates more pairs or unpaired cards to remove.
4. Sometimes a game cannot be won regardless of the player's moves. In the following, the target is 13. The top 3 is covered by all four 10s at a distance of more than one row and therefore is unpairable and cannot be removed. The only option is to generate a new game.



5. It is not always good to remove a pair, as the following example shows.



In the above deal, the target is again 13. Consider the positions of the two 5s and three 2s. The top two 5s are covered by the $\clubsuit 2$ and $\spadesuit 2$, neither of which can be used to pair with the 5 above it.

When either remaining 5 turns up on the discard pile, if it pairs with the $\diamond 2$, the game cannot be won, because the stock's one remaining 5 will have to remove the $\spadesuit 2$. The $\clubsuit 2$ will then be unpairable.

The only way to win is to keep the $\diamond 2$ to pair with the tableau's $\heartsuit 5$, use the stock's two 5s to remove the tableau's other two 2s, pair the stock's $\clubsuit 8$ with the $\diamond 7$, keep the stock's $\clubsuit 7$ to pair with the $\diamond 8$, pair the $\heartsuit 8$ with the $\heartsuit 7$, pair off the remaining cards in the diagonal leading up from the $\diamond 2$, and lastly use the stock's $\heartsuit 2$ to pair with the $\diamond 5$ and win the game.

Even though the required strategy is usually not so elaborate, particular attention should be paid to the top card in the tableau. Unless it is the highest card and removable on its own, it needs a pairing card to be available for the final play. That card must come from either the stock or the row of two cards immediately below the top card.

Thanks go to Thomas Cassidy and Rodrigo Flores for their splendid expertise and abilities in all aspects of this game's creation.

Kāršu spēle ir veltīta Maigai Ramatai Vinika kundzei simtajā dzimšanas dienā.
This card game is dedicated to Maiga Ramata Vinik on her 100th birthday.

Paul Rapoport

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6852-07-25
Oct. 20, 2019