**THE**

**Math**

**Menu**

****

**THE**

**Math**

**Menu**

****

Contents

[“42” 4](#_Toc395434266)

[“99” 6](#_Toc395434267)

[CLOSEST TO 100 8](#_Toc395434268)

[DIVIDE AND CONQUER 10](#_Toc395434269)

[LOW SCORE 13](#_Toc395434270)

[TARGET NUMBER 16](#_Toc395434271)

[TIC-TAC-TOE PRODUCTS 18](#_Toc395434272)

[Convenient cut-out for playing cards 20](#_Toc395434273)

“42,” “99,” Divide and Conquer, and Low Score from: Gorin, Spencer, and Charlie Steffens. *Creative Spirit*. Tucson: Creative Spirit Character Education Programs, 2014. Print.

# “42”

|  |  |
| --- | --- |
| **Math Skills Covered:** Addition**Materials:**Deck of Cards**# of Players:**2+**Grades:**1-5 | **Prepare the deck:**Remove any Joker cards. **Special card values:**Ace = 1Face cards (King, Queen and Jacks) = 102, 3, 4, 5, 6, 7, 8, 9, 10 = their face value |

**OBJECT OF THE GAME:**Be the first to have your cards add up to exactly 42!

**HOW TO PLAY:**

1. Deal out 5 cards per person. Leave the rest in a stack facing down as a draw pile.
2. Players can leave their cards facing up. Players must have 5 cards, and 5 cards *only*, at all times. Each player looks at their cards and adds up the points in their hand.
3. The player to the left of the dealer starts. He takes one card from the top of the middle pile, and turns it over. He decides whether or not he wants to keep it. If he wants to keep it, he must swap it with and discard one of his other cards. If he does not want it, he can simply put it in the discard pile. Either way, he can only have 5 cards at one time.
4. The next player does the same thing, selecting from the stack of cards. Players may not take cards from the discard pile.
5. Once a player has 5 cards that add up to 42, they win!

**FAQ:**

Q: Can I rearrange my cards so it's easier for me to add?
*A: Yes.*

Q: Can I swap cards with another player?
*A: No.*

Q: Can I take a card from the discard pile?
*A: No.*

Q: Can I use just four of the cards in my hand?
*A: No.*

**“42”**

Card Values

**Ace** = 1

**Face cards** (King, Queen and Jacks) = 10

**2, 3, 4, 5, 6, 7, 8, 9, 10** = their face value

# “99”

|  |  |
| --- | --- |
| **Math Concepts Covered:** Addition and subtraction**Materials:**A deck of cards**# of Players:**2+**Grades:**1-5 | **Prepare the deck:** Remove any Jokers.**Special card values:** *(See below)* |

**OBJECT OF THE GAME:**Force any other player to play a card that will make the cumulative group score go over 99 points. Each player wants to avoid playing a card that will push the score over 99 (and end the game).

**HOW TO PLAY:**

1. The dealer gives each player three cards. (Don't let others see your cards).
2. The first player chooses any card from her hand and plays it, starting the group score. For example, if she wants to play a 6, she should put down her card (face-up) and state, "6." This way, everyone else has the new score locked in their heads (it's very easy to forget, so pay attention!). Then this player picks up a replacement card.
3. The next player plays a queen, which is worth 10 points, and **says the new score, "16,"** then draws a replacement card.  Then the next person plays an ace and states the score: "27."  (Remember aces can be one or 11 points, so the score could have been 17 or 27).
4. The next player plays a nine, and gleefully cries out, "AUTOMATIC 99!" at which point the score jumps straight to 99! This makes an interesting situation for the next players! The next player needs either a 3 ("pass"), a 4 ("reverse"), another 9 ("automatic 99"), or a 10 (subtract 10) in his hand, otherwise the score will go past 99 and the round will end.
5. Luckily, the next player has a 10 (subtract 10), and plays it, bringing the total score back down to 89.
6. The next player plays a 7, so the score is 96.
7. The next player plays a 3, which keeps the score at 96. Then a player plays a 2, bringing the score up to 98! The next player has a 4, which reverses the direction of play (while keeping the score at 98). Finally, the next player does not have a 3, 4, 9 or 10, which makes the score go past 99, and the round comes to an end.

 **“99”**

Card Values

Ace = 1 or 11. You decide when you play it.
3 = “**Pass**.” Score stays the same.
4 = "**Reverse**." This reverses the direction of play. Score stays the same.
9 = “**Automatic** **99**.” The score becomes 99, no matter when it is played.
10 = "**Subtract ten" points** (-10).
All picture/face cards = add 10 points
All other cards (2, 5, 6, 7, 8) = their face value.

# [CLOSEST](http://www.cuppacocoa.com/wp-content/uploads/2014/07/Closest-to-100-Scoring-Sheet.docx) TO 100

|  |  |
| --- | --- |
| **Math Skills Covered:** Addition (2-digit numbers), place value, negative numbers (optional), group, combinations to make 10**Materials:**Deck of Cards, [scoring sheet](http://www.cuppacocoa.com/wp-content/uploads/2014/07/Closest-to-100-Scoring-Sheet.docx)**# of Players:**2+**Grades:**1-5 | **Prepare the Deck:** Remove all picture/face cards from the deck.**Special Card Values:**Aces = 110’s = 0 |

**OBJECT OF THE GAME:**Get the lowest overall score in the game by adding two 2-digit numbers to get as close to 100 as possible.

**HOW TO PLAY:**

1. Deal out 6 cards per player. Each player selects 4 cards from their hand to make **two** 2-digit numbers that add up to 100, or as close as they can get to it.*What combinations can Tiffany make with the numbers 2, 6, 2, 7, 9, 4?*
*62+42=104?*
*29+ 67=96?*
*…Ah-hah! 76 + 24 = 100! Perfect!*
2. Players write down numbers and sum on score sheet. The score is how far away you are from 100. Since Tiffany’s total was exactly 100, she gets a score of 0!
3. When both players are ready, they share their solutions and check each other’s work. Repeat for rounds 2-5.
4. At the end, add up all the points to get their *Total Score*. The lowest score wins.

**FAQ**

Q: Can I use just one card to make a 1-digit number?
*A: No. The only way to make a 1-digit number is if you have a zero (remember, 10′s = 0 in this game), such as 0 7.*

Q: What if I have all high cards, like all 8′s and 9′s?
*A: You will have a really high score… *

Q: What do I do when there are no more cards in the deck?
*A: Shuffle all of the used cards and keep going.*

**Name/#: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Closest to 100**

Score Sheet

 **Score**

Round 1: \_\_ \_\_ + \_\_ \_\_ = \_\_\_\_ \_\_\_\_\_

Round 2: \_\_ \_\_ + \_\_ \_\_ = \_\_\_\_ \_\_\_\_\_

Round 3: \_\_ \_\_ + \_\_ \_\_ = \_\_\_\_ \_\_\_\_\_

Round 4: \_\_ \_\_ + \_\_ \_\_ = \_\_\_\_ \_\_\_\_\_

Round 5: \_\_ \_\_ + \_\_ \_\_ = \_\_\_\_ \_\_\_\_\_

 **Total Score**: \_\_\_\_\_

Round 1: \_\_ \_\_ + \_\_ \_\_ = \_\_\_\_ \_\_\_\_\_

Round 2: \_\_ \_\_ + \_\_ \_\_ = \_\_\_\_ \_\_\_\_\_

Round 3: \_\_ \_\_ + \_\_ \_\_ = \_\_\_\_ \_\_\_\_\_

Round 4: \_\_ \_\_ + \_\_ \_\_ = \_\_\_\_ \_\_\_\_\_

Round 5: \_\_ \_\_ + \_\_ \_\_ = \_\_\_\_ \_\_\_\_\_

 **Total Score**: \_\_\_\_\_

# DIVIDE AND CONQUER

|  |  |
| --- | --- |
| **Math Skills Covered:** Division, Factors**Materials:**Deck of cards**# of Players:**2+**Grades:**4-6 | **Prepare the deck:**Remove Jokers and face cards (King, Queen, and Jack) **Special card values:**Ace = 12, 3, 4, 5, 6, 7, 8, 9, 10 = their face value |

**OBJECT OF THE GAME:**Get rid of all the cards from your hand first by finding cards that divide into each other without any remainder.

**HOW TO PLAY:**

1. Each player gets four cards. The rest of the deck is placed in the middle as the draw pile. Players can look at their cards while they wait for their turn.
For example, suppose the following hands were dealt:
*-Priscilla was dealt a 4, 5, 6, and 9
-Rachael was dealt a 2, 3, 7, and 9
-Valentia was dealt an 3, 4, 7 and 10*
2. Priscilla goes first. She takes the top card from the draw pile and looks at it. It's a 10. She recognizes that 5 goes into 10, so she pairs them up and announces, "10 divided by 5 is two," and places that pair into the discard pile. She is now down to 3 cards: 4, 6, and 9.
3. Rachael is next. She draws an ace: WOOHOO! She recognizes that aces are pretty much the wild card that will divide into anything, so she wisely saves it for another turn. For this turn, she pairs up the 3 and 9, announces, "Nine divided by three is three," and places them into the discard pile. She is left with ace, 2, and 7.
4. Valentia's turn! She draws a 7. She quickly sees this as a great opportunity to get rid of her *other 7,*and quickly says, "Seven divided by seven is one!" and discards those two cards. She is left with 3, 4, and 10.
5. It's Priscilla's turn again. She draws a 5. Since her cards are now 4, 5, 6, and 9, there aren't any combinations possible so her turn ends here.
6. Rachael draws a 4, and decides to pair up her 2 and 4 to discard. She is left with ace and 7.
7. Valentia draws a 2, and tries to decide whether to pair it with the 4 or the 10. She goes with the 10, and is left with 3 and 4.
8. Priscilla draws a 3, and decides to pair it with the 9, since there should be more options to get rid of a six than a nine later on. She discards her 3 and 9, and is left with 4, 5, and 6.
9. The game continues in this way until someone is able to divide and discard all of their cards. (Read on if you want to see how this exciting game finished!)
10. Rachael draws a two. She pairs off her 1 and 7 and is left with just a two. She will win the next round as long as she gets an even number!
11. Valentia draws a 6. She pairs it with her 3, leaving her with just a 4. She will win the next round if she gets a 1, 2, 4, or 8!
12. Priscilla draws a 10. She pairs it with the 5 and has two cards left: 4 and 6.
13. Rachael prays for an even number, draws her card, and gets an 8! Hooray! She drops her last two card, the 2 and the 8, down and wins!
14. Valentia is deflated. She had a good chance of winning if her turn came up, but alas, it was not meant to be. Shuffle and play again!

**FAQ:**

Q: What do I do if all the cards in the draw pile get used up?
*A: Shuffle all the discarded cards and turn that into the new draw pile.*

Q: Do I have to draw a card at the start of each new turn?
*A: Yes.*

**Divide and Conquer**

 Card Values

*Remove Jokers and face cards (King, Queen, and Jack)*

**Ace** = 1

**2, 3, 4, 5, 6, 7, 8, 9, 10** = their face value

# LOW SCORE

|  |  |
| --- | --- |
| **Math Concepts Covered:** Fractions, addition**Materials:**Deck of cards**# of Players:**2+**Grades:**4-6 | **Prepare the deck:**(Include Jokers.)**Special card values:**Joker = 0 pointsAce = 1 pointKing, Queen, Jack = 1/2 point2, 3, 4, 5, 6, 7, 8, 9, 10 = their face value |

**OBJECT OF THE GAME:**Get the lowest combined score with 4 cards!

**HOW TO PLAY:**

1. Each player begins with 4 cards, face down. You may not look at your cards yet!
2. Once every player has their cards, each player may look at exactly TWO of their cards. This will be the only chance during the entire game that you can sneak a peek at your cards, so try to remember what they are, and where you put them! You can arrange your cards however you'd like to help you remember better.
3. Once all the players are ready, play begins. The first card is flipped over for everyone to see. It's a queen. That's a good card, because it's worth 1/2 point, which is very low!
4. Emily is the first player. She has a 5 and a 10. The 5 is okay, but the 10 is the worst card possible, so she'll have to get rid of that ASAP! Now she needs to make a decision. Does she want to take the queen (1/2 point) and swap it with one of her cards, or does she want to take a chance on the draw pile? It's not a very hard choice since the queen is one of the best cards, and she picks up the queen and swaps it out with her 10, which is the worst possible card in this game. Now she has to remember that her two cards are a 5 and a queen, and she needs to remember where she put them!
5. Eric is next, and he can now choose between Emily's discarded card (the 10) or take a chance on the draw pile. Again, it's an easy choice. Since 10 is the worst card possible in this game, he goes for the draw pile. He looks at it secretly, and then dejectedly drops it into the discard pile-- it's a 9, which is also a bad card. His hand remains the same.
6. Daniel is next. He is feeling pretty good, because the two cards he looked at were low-- an ace and a king! He's going to keep those cards no matter what. He also decides to pick up a surprise card from the draw pile. It's a 2. *That's not bad*, he thinks to himself, and he selects one of his two unseen cards to swap out. He doesn't know what the card is, and he's hoping it's a high card that he's getting rid of! Everyone watches to see what it is: he flips it over, and it's a JOKER (0 points)! *Noooooooo!!!*he thinks to himself, *That was the best card!! Nooooo!!* However, that's the risk he took, and he lost out on it this time. Too bad.
7. Next to him, Kim is thinking, *Yessss!!!!!*because now she gets to take his discarded Joker! She swiftly picks it up and exchanges it with the 4 that she had already looked at.
8. It's Emily's turn again. She could choose the 4 that Kim discarded, or take a chance on the draw pile. The 4 isn't bad, but curiosity gets the best of her and she picks the draw pile. It's a 3. Not bad! She decides to swap it with one of her unseen cards. She takes a deep breath and picks one up, flips it over and... it's a 6! Not a bad trade. She exchanges her 6 for the 3, and now it's Eric's turn again.
9. The game continues in this way until someone feels that they have the lowest score, at which point they announce, "LOW SCORE!" The game immediately stops and all the players flip over their cards and add up their total scores.
10. If the player who said LOW SCORE is the lowest, she wins and doesn't have to add anything to her accumulative game total. Scoring is as follows:
	* If the player who said "LOW SCORE" **is** the lowest, she adds 0 points to her game total.
	* If the player who said "LOW SCORE" **is not** the lowest (either another player beats her score or ties with her), she gets the point total in her hand *AND additional 10-point penalty to her score.* That’s right. You have to think carefully before calling it!
	* All other players add up the points in their hand and add that to their total score.
11. If no one calls "Low score," then the hand ends when the cards run out. At this point, all the players just get their totals and there is no bonus or penalty. It's best if all players record every other players' score so they can get more math practice in!
12. After five rounds, the winner is the one with the lowest cumulative score!

**FAQ:**

Q: If I look at my unknown card and don't want to trade it anymore (like Daniel in step #6), do I still have to?
*A: Yes, once you've looked you're committed. It's the chance you're taking!*

Q: When I say LOW SCORE, does everyone get one more turn before showing cards?
*A: No. You can declare "Low score!" at any point in the game and the round ends there.*

Q: Once the game begins, can I move my cards around?
*A: No. You just have to remember what is where. Memory. Good luck!*

Q: Can I say "Low Score" in the middle of someone's turn?
*A: Well that's not nice! Let him/her finish his/her turn and then call it out.*

**Low Score**card values

Joker = 0 points
Ace = 1 point
King, Queen, Jack = 1/2 point
2, 3, 4, 5, 6, 7, 8, 9, 10 = their face value

Challenge version:

Joker = 0 points
Ace = 1 point
Jack = 1/4 point

Queen = 1/3 point

King = 1/2 point
2, 3, 4, 5, 6, 7, 8, 9, 10 = their face value

# TARGET NUMBER

|  |  |
| --- | --- |
| **Math Skills Covered:** Addition, subtraction, multiplication, division, parentheses, exponents, order of operations (“PEMDAS”)**Materials:**5 dice**# of Players:**1+**Grades:**4-6 | Set up your board for Target Number**SET UP YOUR GAME BOARD:**Use the template below, or use a whiteboard by setting up the space as shown. |

**OBJECT OF THE GAME:**Write an expression to get as close to the target number as you can.

**HOW TO PLAY:**

1. **Roll two dice to determine the target number.** For example, rolling a 3 and a 5 could mean your "target number" is either 35 *or* 53. It doesn't really matter which one you pick. For this example, I'm going to use 53. All players write this number on their boards.
2. **Roll 5 dice to determine the 5 digits you will play with.** In thisexample, we rolled the digits 1, 1, 3, 6, and 6 (after rolling, I like to put mine in order from least to greatest). Record these 5 numbers on your game board.
3. **Using each of the digits exactly once, write an expression to get you as close to the target number as possible.**In this example, you must use the digits 1, 1, 3, 6, and 6 to make a number as close to 53 as you can get. For example, a good expression would be (3 + 6) x 6 – (1 x 1).
4. **Write out the complete expression and then check to see if it works.**
5. **Now wait for everyone else to be ready, and then share results.** Be sure to check each other's work and make sure they are doing their math correctly. After all, the real point of this is to get some mathematical thinking in, and it would be counterproductive if we were practicing incorrectly!

**Name/#: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Target Number**

My target number is: ­­­­\_\_ \_\_

I will use these 5 numbers: \_\_\_; \_\_\_; \_\_\_; \_\_\_; \_\_\_;

My target number is: ­­­­\_\_ \_\_

I will use these 5 numbers: \_\_\_; \_\_\_; \_\_\_; \_\_\_; \_\_\_;

# TIC-TAC-TOE PRODUCTS

**Math Concepts Covered:** Multiplication fact practice
**Materials:**[Template](http://www.cuppacocoa.com/wp-content/uploads/2014/06/Tic-Tac-Toe-Products-Game-Board.docx), two sets of colored game pieces (bingo chips, beans, colored paper squares, etc.), two paper clips
**# of Players:**2
**Grades:**3-6

**OBJECT OF THE GAME:**Get four in a row!

**HOW TO PLAY:**

1. Divide the game pieces up so each player has one color.
2. Player 1 places both paperclips over two numbers on the bottom of the board. She then places her game piece over the *product* of those two numbers. For example, paperclips at a 3 and a 6 means she uses her game piece to cover the 18 on the playing board.
3. Player 2 moves *one* of the paperclips to create a new product. For example, he can move the paperclip from the 3 to the 5. The product of 6 x 5 is 30, so he will use his game piece to cover up the square that says 30.
4. It is now Player 1's turn again. She moves *one* of the paperclips to create a new product, and covers up her new square. In this example, she moved the 6 to the 5. She is multiplying 4 x 5 to get 20.
5. Continue in this fashion until someone gets four in a row.

**FAQ**

Q: Can I stack two paperclips on top of each other, like 6 x 6?
*A: Yes.*

Q: Can I make four in a row going horizontally, vertically, or diagonally?
*A: Yes.*

Q: Can I cover someone else's game piece on the board?
*A: No. Once a product is covered, it is gone. You cannot cover it again.*

Q: Can I move both paperclips in one turn?
*A: No.*

**Tic-Tac-Toe Products**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1** | **2** | **3** | **4** | **5** | **6** |
| **7** | **8** | **9** | **10** | **12** | **14** |
| **15** | **16** | **18** | **20** | **21** | **24** |
| **25** | **27** | **28** | **30** | **32** | **35** |
| **36** | **40** | **42** | **45** | **48** | **49** |
| **54** | **56** | **63** | **64** | **72** | **81** |

**1 2 3 4 5 6 7 8 9**

# Convenient cut-out for playing cards

Print, cut, and fold this to store with a pack of playing cards for easy reference

|  |  |
| --- | --- |
| **“42” Card Values***Mental Addition\*Remove Jokers***Ace** = 1 **Face cards** (King, Queen and Jacks) = 10**2, 3, 4, 5, 6, 7, 8, 9, 10** = their face value | **“99” Card Values** *Mental Addition and Subtraction\*Remove Jokers***Ace** = 1 or 11. You decide when you play it.**3** = “**Pass**.” Score stays the same.**4** = "**Reverse**." This reverses the direction of play. Score stays the same.**9** = “**Automatic** **99**.” The score becomes 99, no matter when it is played.**10** = "**Subtract ten" points** (-10).**All picture/face cards** **(J, Q, K)** = add 10 points**All other cards (2, 5, 6, 7, 8)** = their face value. |
| **“Divide and Conquer” Card Values***Mental Division**\*Remove Joker and face cards***Ace** = 1, **2, 3, 4, 5, 6, 7, 8, 9, 10** = 2, 3, 4, 5, 6, 7, 8, 9, 10 respectively as shown on the cards  | **“Low Score” Card Values***Adding Fractions***Joker** = 0 point**Ace** = 1 point**King, Queen, Jack** = 1/2 point**2, 3, 4, 5, 6, 7, 8, 9, 10** = their face value |