

NATIONAL MATHEMATICS PENTATHLON® ACADEMIC TOURNAMENT HIGHLIGHT SHEETS for DIVISION IV (Grades 6-7)

Highlights contain the most recent rule updates to the Mathematics Pentathlon® Tournament Rule Manual.

DIVISION IV (Grades 6-7) Common Rules

ONE MINUTE TURNS	Each Pentathlete is to complete a turn within one minute. If a player exceeds this time limit, the Monitor issues a reminder to take the turn immediately. If the player does not do so, the player forfeits that turn. The third violation of this rule results in a forfeiture of the game.
FLAG CARD	A player must be in possession of the flag card while taking a turn. The player does not have to be holding the flag card when completing a turn.
SIGNING SCORE CARDS	Pentathletes are to verify the information on their score cards and sign their own score card after the game is complete. This signature means the information on the card was correctly recorded by the Monitor.
STAYING SEATED	Pentathletes are to remain seated at their game until their score cards are checked and picked up by a Game Leader.
SCRATCH PAPER	Scratch paper is provided for ALL games

DIVISION IV (Grades 6-7) ~ CHALLENGING - OVERVIEW

NO CHALLENGE START OF GAME, PASSING OF FLAG CARD, OR TIME	Challenges can NOT be issued on the starting rules, passing of the flag card, or exceeding the one minute time limit. The Monitor oversees these issues.
ANNOUNCING A CHALLENGE	Players must challenge at the appropriate time. Time out is granted by the Game Monitor and the player must state the nature of the challenge before the Monitor rules correct, incorrect, or inappropriate (see 2nd & 3rd opinions). <u>Once play has resumed, changes of prior game rulings will NOT be considered.</u>
OPINIONS 2ND & 3RD	2nd & 3rd Opinions: After the Monitor has made a ruling, either Pentathlete “may” hold up the Opinion Card to ask for a 2nd ruling from the Game Leader. After the Game Leader has ruled, either Pentathlete may then ask for a 3rd and final opinion from the Tournament Director.
INVOLVING MORE THAN ONE RULE	If a challenge situation involves more than one rule, each challenged rule is treated as a separate challenge. Each challenge is ruled on in the order announced by the player.
CHALLENGING A DECLARED WIN	If a player challenges a declared win, the Monitor asks the player to state the nature of the challenge. If CORRECT , a win is granted to the challenger. If INCORRECT , the declared win is confirmed. This applies to declaring a win with regard to the <u>intended goal</u> of the game. EXAMPLE: Prime Gold - Player declares a win based on 3 veins of Prime Gold and was challenged by the opponent, the opponent would be declared the winner. In contrast, if a player places a chip to construct the fourth vein based on an incorrect number sentence that results in what looks to be a winning situation, declares a win and is challenged, the official would allow play to continue after ruling a correct challenge to an incorrect number sentence and assessing penalty.
THREE “I”, “IA”, OR COMBINATION OF “I”S & “IA”, IS AN AUTOMATIC LOSS	Three incorrect and/or inappropriate challenges, whether consecutive or not, result in a forfeiture of the game. Once three have been obtained the Monitor stops the game and declares the winner. Monitors may warn Pentathletes of this rule after they receive their first and second “I” or “IA”.

FRAC FACT™ Tournament Highlights

GOAL	BEST 2 OUT OF 3 GAMES - to acquire the greater number of 3-strip tricks for each game. 2 WAYS TO WIN - Win 2 out of 3 games, OR win 1 game and tie 2 games.
REMOVE	One copy of zero strips & whole strips are removed to make this a more challenging game (10 strips).
START	Both players draw a strip from top of Draw Pile. Lower value begins. Beginning player reshuffles, places the top two strips in the center rectangles, then deals out five strips to each player which are placed face up on the players' spaces, places the stack back on the draw pile, and the starting player begins a turn. Players alternate being the beginning player in sequential games.
BEGINNING OF TURN	when player receives the flag card NOTE: For a CAPTURE, a player's regular turn begins after a player replenishes the 3 strips.
END OF TURN	when player passes the flag card to opponent
DECLARING A WIN	The Monitor declares a win or tie for each game by subtracting the number of strips in the discard pile from the strips acquired in the scoring pile. The player with the greater difference wins. If both players have the same difference, a TIE declared.
END OF GAME	For each game: when Draw Pile has less than 3 strips at the beginning of a player's turn the Monitor ends the game
NOT A ROUND GAME EXCEPT GAME TIME LIMIT	The first player to reach the goal of game wins. If the game has not ended when time is called and the beginning player has touched a strip from the deck, both players are allowed to complete a turn.
GAME TIME LIMIT MONITOR DECLARES	Note: If a game has not been completed, the player with the greater difference is declared the winner for that game. WIN: Monitor declares win if a player wins 2 out of three games OR wins 1 and ties 2. TIE: If neither player has won 2 games or won 1 and tied 2 when time is called, the Monitor declares a tie.

OTHER RULES ~ FRAC FACT™

PAPER/PENCIL LIMITED USE	Paper and pencil may ONLY be used for the operations of MULTIPLICATION and DIVISION.
TOUCH THEN ANNOUNCE	Players MUST do this in the following order: 1) TOUCH the 3 fraction strips forming the trick; 2) ANNOUNCE the arithmetic sentence; and 3) pick up the 3 strips and place them into a scoring pile to the right of the player.
EQUIVALENT FRACTIONS CAN BE STATED	Equivalent expressions for the fractions strips may be used, but are limited to the partitions of the fractions strips used in the game. For example, the $\frac{2}{6}$ strip could also be referred to as $\frac{1}{3}$ or $\frac{4}{12}$.
TOUCH-TAKE	Once one of the player's 5 strips has been touched, it must be used to form a trick. Any touched bar not used to form a trick must be removed and placed onto the player's discard pile. The player then replenishes the hand and completes a turn.
REPLENISHING A HAND	A player has the first 30 seconds of a turn to replenish 1-5 strips from hand and place the discarded strips to the left of the player.
PASSING A TURN	When unable to form a trick, a player may pass the flag card to the opponent and end the turn.
FORCED DISCARD	Should an opponent pass a turn (see above) without discarding and replenishing a hand, a player may issue a forced discard by passing the flag card back to the opponent. This forces the opponent to replenish and discard at least one bar. The opponent may then proceed to take a turn and attempt to make a trick. NOTE: If a player can form a trick, but instead issues a force discard, the opponent can capture.
CAPTURE	Within 10 seconds after receiving the flag card and before touching a strip a player may announce "Capture" or "Challenge" and capture a trick that was not detected by the opposing player. After using the Touch & Announce rule and capturing the trick, the player draws 3 bars (2 to replenish the opponent's hand and one for the center of the board). The player then begins a regular turn..

CHALLENGING ~ FRAC FACT™

WHEN TO CHALLENGE	upon receiving the flag card and before touching a fraction strip CAPTURE: BEFORE the challenged player replenishes the 3 strips to begin the regular part of the turn.
CORRECT - "C"	The 3 strips forming the trick are awarded to challenger and the challenger begins a regular turn. NOTE: When challenging an arithmetic sentence, the challenger does not have to state the correct sentence. Record "C" on Challenge Sheet CHALLENGING A CAPTURE: challenger gets trick and challenger begins a regular turn CHALLENGE NOT INVOLVING A TRICK: challenger receives an additional turn (example: Touch-Take rule)
INCORRECT - "I"	The challenger forfeits a turn. Record "I" on Record Sheet. CHALLENGING A CAPTURE: The challenged player gets an additional turn after completing a regular turn. <i>Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.</i>
INAPPROPRIATE - "IA"	An Inappropriate Challenge is one that is made at the wrong time or is about a procedure that is not a tournament rule. Such a challenge DOES NOT result in loss of turn, but is recorded as an "IA" on the Record Sheet. <i>Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.</i>

Pent 'Em In™ Tournament Highlights

GOAL	1) During PLACEMENT: If a player can NOT place a pentomino, the player forfeits the game. 2) During MOVEMENT: If a player is challenged for moving the same pentomino 3 consecutive times, even if interspersed with chip movement. 3) A player wins when the OPPONENT CONCEDES that all 5 of their pentominoes are entrapped.
START	Monitor puts a chip of one color in one hand and chip of different color in another. Ask one player to determine what the starting color will be and ask the other player to pick a hand. Player who has starting color receives the flag card and play begins.
BEGINNING OF TURN	when player receives the flag card
END OF TURN	when player passes the flag card to opponent
END OF GAME	when a player declares a win, concedes to a win, or is unable to place a pentomino
DECLARING A WIN	A player must announce a win while in possession of the flag card.
NOT A ROUND GAME EXCEPT GAME TIME LIMIT	The first player to reach the goal of game wins. If the game has not ended when time is called and the beginning player has touched a piece, both players are allowed to complete a turn.
GAME TIME LIMIT MONITOR DECLARES	If time is called and neither player has won, the Game Monitor declares a TIE.

OTHER RULES ~ Pent 'Em In™

PHASE I: INITIAL PLACEMENT	The official assures that each player has placed exactly 5 pentominoes onto the gameboard. No sixth pentomino is allowed to be placed. No pentomino may be placed over the shaded squares of the gameboard. Also, a pentomino may NOT be placed so that it shares a common edge with the opponent's pentomino. If a player PICKS UP a piece and cannot place it, another piece may be selected. If a player has already PLACED a piece, it CANNOT be changed. If a player cannot place a pentomino, the player forfeits the game.
PHASE II: MOVEMENT OF PENTOMINOES & CHIPS	PENTOMINOES: Pentominoes may now be moved so that they share a common edge with the opponent's pentominoes. A pentomino may be slid, flipped, OR rotated, but no combinations of these movements can be made within a turn. Pentomino pieces may be flipped or rotated over chips, shaded squares, or parts of another pentomino. They may NOT be slid over spaces occupied by chips or pentominoes or over the gameboard's shaded squares. CHIPS: After the Placement Phase, chips may be moved. A chip may NOT be slid through or placed on the shaded squares.
TRACKING MOVEMENT	Paper and pencil are provided so Pentathletes and Game Monitors can keep track of each player's piece movement.
MOVE IT-USE IT	If a player has moved a piece off of it's space, that piece must be moved to complete a turn.
STARTING CIRCLES	Playing pieces may be moved into or though unoccupied starting circles.
NO THREE CONSECUTIVE MOVES OF THE SAME PENTOMINO	A player may NOT move the same pentomino 3 consecutive times, even if interspersed with a chip movement. Note: If challenged this will result in loss of game for 3 consecutive pentomino moves.
NO CONSECUTIVE CHIP MOVEMENTS ALLOWED	A player may NOT make two consecutive chip movements. If a chip has been moved during one turn, the player must move a pentomino in the next move. Note: If challenged see Correct Challenge (Other Challenges).
CONCEDING A LOSS	A player wins when the opponent concedes that all 5 of the opponent's pentominoes are entrapped and can not be moved. A player also wins when 4 of the opponent's pentominoes are entrapped and the opponent has already moved the fifth pentomino twice (with possible intermittent chip movement).

CHALLENGING ~ Pent 'Em In™

WHEN TO CHALLENGE	upon receiving the flag card and before touching a pentomino or chip
CORRECT - "C"	Initial Placement: Game Monitor removes placed piece and challenger selects and places an opponent's piece correctly. If a Pentomino can not be placed: Game Monitor declares the win. 3 Consecutive Same Pentomino Moves: Game Monitor declares the win when challenged. Other Challenges: The Game Monitor restores the board to prior status and challenger EITHER begins a turn OR forces the opponent to move a pentomino. NOTE: Record "C" on Challenge Sheet
INCORRECT - "I"	Initial Placement: Challenged player may move one of the opponent's chips to a new location and challenger begins a turn. Other Challenges: Loss of turn - Record "I" on Challenge Sheet. <i>Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.</i>
INAPPROPRIATE - "IA"	An Inappropriate Challenge is one that is made at the wrong time or is about a procedure that is not a tournament rule. Such a challenge DOES NOT result in loss of turn, but is recorded as an "IA" on the Record Sheet. <i>Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.</i>

Fraction Pinball™ Tournament Highlights

GOAL	A player may win based on any of the following conditions: a) being the first to obtain and identify an accumulated score between 4.95 and 5.05; b) upon starting a turn when the player's pinballs are blocked in by the opponent's pieces. EXCEPTION: Player is able to neutralize an opponents' chip and move the stack of chips back to the Start Circle which frees up a pawn. NOTE: Condition "b" is the only situation where the official declares the win; c) if, at the beginning of a turn the score is between 4.95 and 5.05 and the opponent has not declared a win; or d) if at the beginning of a turn the score is less than 1.5 or greater than 8.5 in Phase III.
START	Monitor puts a blue pawn in one hand and a red pawn in another. Ask one player to determine what the starting color will be and ask the other player to pick a hand. Player who has starting color receives the flag card and play begins.
BEGINNING OF TURN	when player receives the score/flag card.
END OF TURN	when the player passes the score/flag card
DECLARING A WIN	A player must announce a win while in possession of the score/flag card.
GAME TIME LIMIT MONITOR DECLARES	If time is called and the starting player has moved a piece, a round is allowed to be completed. TIE: If neither player has won, a tie is declared.

OTHER RULES ~ Fraction Pinball™

PHASE I: PINBALL PLACEMENT	After pinball lands onto the first positive fraction circle, a player states the decimal equivalent of the fraction, adds this value to the accumulated score on the score/flag card, announces the new accumulated score, and passes the score/flag card to opponent to end the turn. Pinballs may not enter negative fraction circles in this phase.
PHASE II: CHIP PLACEMENT	Only blocking chips are placed and cannot be moved a second time. Pinballs cannot be moved at this time.
PHASE III: MOVEMENT	Player can move a pinball or blocking chip according to same procedures used in Phases I and II. Pinballs may now enter negative fraction circles.
NEUTRALIZATION OF BLOCKING CHIPS	During Phase III a player may neutralize an opponent's blocking chip by moving one of the player's blocking chips along a path containing fraction circles onto a node occupied by an opponent's blocking chip. The player's chip is placed on top of the opponent's chip. A player may choose to leave the stack of two chips on that node OR move the stack of chips to the start circle provided no other chip(s) occupy that position. <u>No more than two chips may be stacked on any node or the start circle.</u> (The blocking chip may NOT be moved directly from one node (or the starting circle) to another to neutralize an opponent's chip.) Note: Only the top blocking chip of a neutralized stack may be moved within a turn.
CENTER PENTAGON	A player may NOT change the direction of movement of a pinball or blocking chip at the center pentagon.
MOVE-IT USE-IT	If a player has moved a piece off of it's space, that piece must be moved to complete a turn.

CHALLENGING ~ Fraction Pinball™

WHEN TO CHALLENGE	upon receiving the score/flag card and before touching a piece
CORRECT - "C"	1) The official restores gameboard and score (if changed) to prior status. 2) *(see Note) The challenger then takes the opponent's turn with the piece(s) that had been moved. 3) The challenger then completes a regular turn. Record "C" on Challenge Sheet
INCORRECT - "I"	(see *NOTE) The challenged player takes the opponent's turn and then completes a regular turn. <i>Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.</i>
* NOTE	A player must take the opponent's turn in Phase I & II, but in Phase III the player may either take the opponent's turn or a regular turn..
INAPPROPRIATE - "IA"	An Inappropriate Challenge is one that is made at the wrong time or is about a procedure that is not a tournament rule. Such a challenge DOES NOT result in loss of turn, but is recorded as an "IA" on the Record Sheet. <i>Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.</i>



Fraction Pinball™



Record Flag Card

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Fraction Pinball™



Record Flag Card

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Prime Gold™ Tournament Highlights

GOAL	A player must be the only player at the end of a round who has: 1) constructed one continuous path of chips from top to bottom or from side to side of the gameboard OR; 2) mined four veins of prime gold (four veins of three or more chips covering prime numbers in a contiguous diagonal line). Note: Extending veins on a diagonal line can only be counted as one (1) vein. However, any chip in a vein can be used to form another intersecting diagonal vein.
START	Players each toss one of the ICOSAHEDRA dice (a 20 sided die). The player with the lower value begins.
BEGINNING OF TURN	when player receives the Equation-Flag card
END OF TURN	when player passes the Equation-Flag card to the opponent
END OF GAME	when a player receives the Equation-Flag card and has no chips to play
DECLARING A WIN	A player must announce a win before releasing the flag card. If the beginning player announces a win, the second player is allowed to complete the round. If both players construct a win and properly announce it, the Monitor declares a TIE.
ROUND GAME	YES ~ consists of the beginning and second player completing a turn
GAME TIME LIMIT MONITOR DECLARES	If time is called and the starting player has rolled the dice, a round is allowed to be completed. If neither player has won, the Game Monitor declares a TIE.

OTHER RULES ~ Prime Gold™

CALCULATOR USAGE	Non-programmable calculators may be used if each Pentathlete has one. If one player chooses <u>not</u> to use a calculator, the opposing player may not make use of a calculator.
WRITING THE NUMBER SENTENCE	A player MUST WRITE the number sentence before completing a turn. The order of operations must be used. (The operations of multiplication and division precede the operations of addition and subtraction.) Eg: if a 2, 5, and 6 were rolled many possible number sentences could be written such as $2 \times 5 + 6 = 16$, or $(2 + 5) \times 6 = 42$, or 5 to the 2nd power - $6 = 19$, or $(6 - 5) 2 = 2$ Note: Players do NOT have to announce their number sentence.
ANNOUNCING GOLDBACH'S DOUBLE PRIME PLACEMENT	In addition to writing the number sentence, the player MUST ANNOUNCE the 2 prime numbers which sum to the value constructed with the die BEFORE completing a turn.
LAI D IS PLAYED	Once a chip is laid it can not be repositioned
PASSING A TURN	If a player is unable to place a chip within the one minute time limit, the player passes the flag card to end the turn.
PRIME GOLD VEINS	VEIN of 3: 1 chip removed from composite number - chip returned to the opponent VEIN of 4: 2 chips removed from composite numbers AND 2 of players chips may be placed onto the composite numbers that were covered by removed chips - removed chips returned to the opponent VEIN of 5: same as vein of 4 but also remove one chip which covers a prime number and return this chip to opponent
SHAFTS (5 or more chips)	SHAFTS of 5: any 2 of opponents chips removed - chips returned to the opponent SHAFTS of 6 or more: any 3 of opponents chips removed - chips returned to the opponent
FACTORIALS	$0! = 1$, $1! = 1$, $2! = 2$, $3! = 6$, $4! = 24$, $5! = 120$, $6! = 720$, $7! = 5,040$, and so on

CHALLENGING ~ Prime Gold™

WHEN TO CHALLENGE	upon receiving the flag card and before touching the dice
CORRECT - "C"	The Game Monitor returns board to prior status and the challenger begins a turn. Record "C" on Challenge Sheet
INCORRECT - "I"	The challenger forfeits a turn. Record "I" on Record Sheet. <i>Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.</i>
INAPPROPRIATE - "IA"	An Inappropriate Challenge is one that is made at the wrong time or is about a procedure that is not a tournament rule. Such a challenge DOES NOT result in loss of turn, but is recorded as an "IA" on the Record Sheet. <i>Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.</i>



Prime Gold™



Equation Flag Card

Player A Name:	Player B Name:



Prime Gold™



Equation Flag Card

Player A Name:	Player B Name:

Remainder Islands™ Tournament Highlights

GOAL	The player having the greater number of chips when the game has ended wins the game. THE MONITOR COUNTS THE CHIPS AND ANNOUNCES THE WIN.
START	Players each toss a dodecahedron die (12 sided). The player with the lower value begins.
BEGINNING OF TURN	when player receives the flag card
END OF TURN	when player passes the flag card to the opponent
END OF GAME	When a player has chips on all 6 islands and the second player has been allowed to complete the round the Game Monitor announces the end of game AND declares the winner based on the greater number of chips.
ROUND GAME	YES ~ consists of the beginning and second player completing a turn
GAME TIME LIMIT MONITOR DECLARES	If time is called and the starting player has rolled the dice, a round is allowed to be completed. WIN: The player with the greater number of chips is declared the winner by the Game Monitor. TIE: If both player's have the same number of chips, the Game Monitor declares the tie.
OTHER RULES ~ Remainder Islands™	
CALCULATOR USAGE	Non-programmable calculators may be used if each Pentathlete has one. If one player chooses not to use a calculator, the opposing player may not make use of a calculator.
ANNOUNCING NUMBER SENTENCE	The player must announce the dividend, divisor, and remainder of the chosen division problem before moving a piece or removing chips.
PASSING A TURN	If a player is unable or does not wish to move, the player passes the flag card to end the turn.
PAWN MOVEMENT LAID IS PLAYED	Before moving a the pawn a player MUST POINT and COUNT ALOUD for the opponent to hear, the triangles that compose the path for the pawn. The pawn then can be placed on the last triangular space. Once pawn is laid it cannot be repositioned. Note: Whenever a remainder is obtained, a player MUST land on a triangular space adjoining an island (docking).
ZERO REMAINDER OPTIONS	If the quotient is 1 or greater with a remainder of zero, the player may choose the following options: 1) the player's pawn may be moved and it does not have to land on a triangular space adjoining an island; 2) the opponent's pawn may be moved and it does not have to land on a triangular space adjoining an island; 3) the opponent's chip(s) may be removed from any ONE island based on the following conditions: a) quotient is 1-19: 1 chip may be removed; b) quotient is 20-29: *2 chips may be removed; or c) if quotient is 30 or more: *3 chips may be removed. * All chips must be removed from the same island, the opposing player must have at least the number of specified chips on an island, and the removed chip(s) are returned to the opponent
ZERO QUOTIENT WITH NON-ZERO REMAINDER	If a player's pawn is on a triangle adjacent to an island that does NOT contain any of the player's chips and if the player constructs a division problem with a quotient of zero and a non-zero remainder, the player may move zero and deposit the number of chips indicated by the remainder. EXAMPLE: $7 \div 8 = 0 R7$ OR 7 divided by 8 equals a quotient of 0 with a remainder of 7
REMOVED CHIPS	Removed chips are returned to the opponent.
DEPLETED CHIPS	If all 40 of a player's chips have been played and the player still has islands without chips, play continues.
CHALLENGING ~ Remainder Islands™	
WHEN TO CHALLENGE	upon receiving the flag card and before touching the dice
CORRECT - "C"	The Game Monitor returns board to prior status and the challenger removes 3 or fewer of the opponent's chips from a selected island and returns them to the opponent. Record "C" on Challenge Sheet
INCORRECT - "I"	The challenged player removes 3 or fewer of the challenger's chips from a selected island, returns them to the challenger, and the challenger forfeits a turn and passes the flag card to the challenged player. Record "I" on Record Sheet. <i>Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.</i>
INAPPROPRIATE - "IA"	An Inappropriate Challenge is one that is made at the wrong time or is about a procedure that is not a tournament rule. Such a challenge DOES NOT result in loss of turn, but is recorded as an "IA" on the Record Sheet. <i>Any combination of 3 "I"s and/or "IA"s results in a loss that is declared by the Monitor.</i>