July 31, 1951 I. B. NEEDHAM 2,562,633

ARITHMETIC CARD GAME

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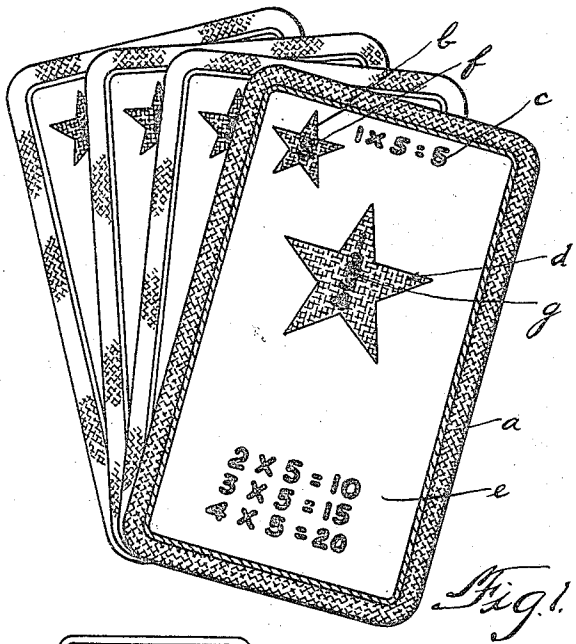

Fig. 1.

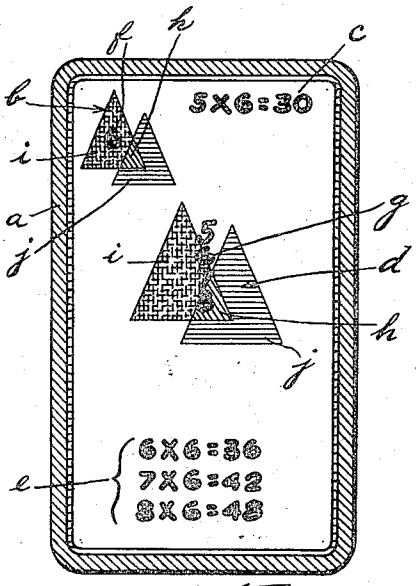

Fig. 2.

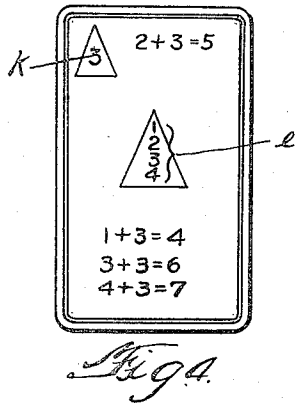

Fig. 4.

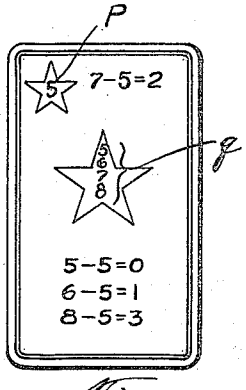

Fig. 6.

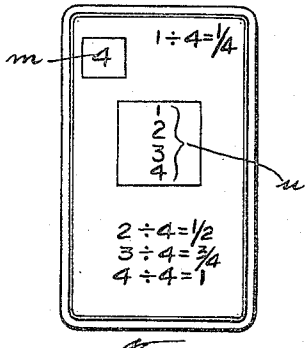

Fig. 5.

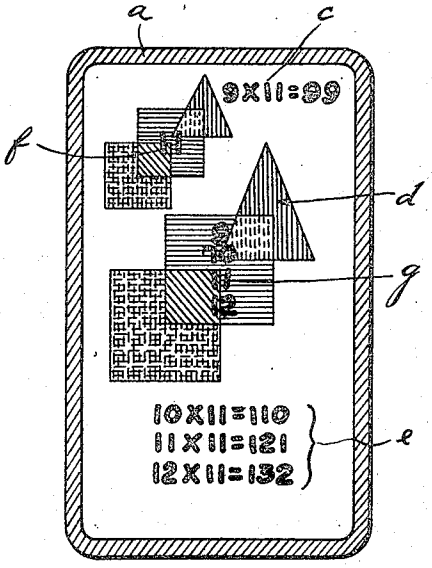

Fig. 3.

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ARITHMETIC CARD GAME

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6 Claims. (Cl. 35—31)

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This invention relates to card games and more particularly to a game providing drill for the players in the arithmetic processes such as multiplication, division, subtraction, and addition.

It has long been known in the field of education that repetition combined with pleasure makes for learning while repetition without pleasure makes for forgetting. Children, it has also been found, learn predominantly by either visual, oral, or kinesthetic experience.

Various card games of this type have heretofore been proposed which fail to combine these three methods of learning and thus their instructive value is restricted primarily to particular classes of players. A further disadvantage of these games is that they are adapted exclusively for either home or schoolroom use. Furthermore in order to properly play the games, players having a general knowledge of the arithmetic processes are required. Therefore, children just beginning to learn these processes or those having difficulty in mastering them are usually not qualified to play.

Thus it is one of the objects of this invention to provide an arithmetic drill card game which incorporates all three methods of learning.

It is a further object of this invention to provide an arithmetic drill game which is readily adapted to be played at home or in the schoolroom.

It is a further object of this invention to provide a game which may be played by a few or large number of players and is not restricted to players having at least a general knowledge of the arithmetic processes.

It is a still further object of this invention to provide an arithmetic drill card game employing cards which have inscribed on one face thereof various geometric designs which aid the player in associating the key numeral of the card with a particular geometric design.

It is a still further object of this invention to provide an arithmetic drill game employing cards having inscribed on one face thereof marginal borders and geometric designs of various identifying colors or combination of colors.

It is a still further object of this invention to provide an arithmetic drill card game which is simple to learn, interesting to play, and has high instructive value to the players in the arithmetical processes.

Further and additional objects will appear from the description, accompanying drawings, and appended claims.

In accordance with one embodiment of this invention a pack of cards for playing an arithmetic drill game is provided comprising a plurality of groups formed of a predetermined number of cards. Each card of a group has inscribed on one face thereof a marginal border, a geometric design positioned at the upper left hand corner of the bordered face, a key numeral embodied within the design, an arithmetic problem incorporating the key numeral positioned adjacent said design, an enlarged reproduction of the design positioned beneath said problem, a plurality of numerals embodied within the enlarged design and a plurality of arithmetic problems positioned beneath said enlarged design. The problems positioned beneath the enlarged design involve the same arithmetic process as the single problem and incorporate the key numeral and one of the numerals embodied within the enlarged design. The single problem represents the particular card of the group and the other problems represent the remaining cards of the group.

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For a more complete understanding of this invention reference should be made to the drawings wherein:

Fig. 1 is a front view of a group of cards called a "quad," used for drilling the players in multiplication, shown arranged in a fanned or spread formation.

Fig. 2 is a front view of the inscribed face of a single card of another group involving the same arithmetic process.

Fig. 3 is like Fig. 2 but shows a card of still another group.

Fig. 4 is a front view of a card of a particular group for use in drilling the players in addition.

Fig. 5 is like Fig. 4 but shows a card of another group for use in drilling the players in division, and

Fig. 6 is like Fig. 4 but shows a card of another group for use in drilling the players in subtraction.

The cards illustrated in the drawings are used in playing an arithmetic drill game, which is to be hereinafter known as "Quads." Four packs of cards are provided, one for each of the arithmetic processes such as multiplication, addition, division, and subtraction. The particular pack or packs of cards to be used in playing the game are dependent upon which process or processes are in most need of drill or practice by the players. The pack of cards used for multiplication drill is designated "Times quads"; for division, "Divide quads"; for addition, "Add quads"; and for subtraction, "Subtract quads." For simplification, only the "Times quads" will be described hereinafter more fully.

The "Times quads" pack is divided up into

three sets or decks. Each deck in turn is divided up into twelve groups of four cards each known as a "quad." Thus one pack of cards consists of a total of one hundred forty-four cards. All the decks pertain to multiplication tables one through twelve. Deck number one however consists of multiplicands from one through four; deck number two, multiplicands from five through eight; and deck number three, multiplicands from nine through twelve. Depending on the proficiency of the players in the multiplication tables, one, two, or all three decks may be used in play.

All the cards are of standard playing card size and have uniform backs. The faces of the cards are alike to the extent that each has inscribed thereon a marginal border *a*; a design *b* positioned at the upper left hand corner of the bordered face; an arithmetic problem *c*, including the answer, positioned adjacent the design; an enlarged reproduction *d* of the design *b* positioned approximately centrally of the bordered face; and a plurality of arithmetic problems *e*, including the answers, positioned beneath reproduction *d*. A key numeral *f* is superimposed or embodied within the design *b* and is incorporated in all the problems appearing on the face. The key numeral in the case of the "Times quads," indicates the particular multiplication table involved. Four consecutive numerals *g* are superimposed or embodied within the enlarged design *d* and represent the multiplicands for the various problems appearing on the face. The single problem *c* positioned at the upper portion of the face indicates the particular card of the quad and the arithmetical process involved. To further aid the player in identifying the table, the designs *b* and *d* are of a particular geometric figure, such that the sum of either the sides or vertices of the figure equal the key numeral and thus enables the player to associate the key numeral with a particular geometric design. The geometric designs and the corresponding key numerals may be as follows:

Design:	Key numeral
Circle	1
Crescent	2
Triangle	3
Square	4
Five pointed star	5
Two overlapping triangles	6
A triangle and overlapping square	7
Two overlapping squares	8
Three overlapping triangles	9
Two overlapping five pointed stars	10
Two overlapping squares and overlapping triangle	11
Three overlapping squares	12

It is to be understood of course that this invention is not to be limited to these particular designs as other related designs may be used.

The marginal border *a* and designs *b* and *d* for each "quad" are of a particular identifying color or combination of colors. Thus when the players are young children, they have an opportunity to become acquainted with various colors and the combination of various colors. In cards having overlapping designs, such as those shown in Figs. 2 and 3, the overlapped portion *h* of the design is the color resulting from the combination of the colors of the two adjacent figures *i* and *j* of the design, see Fig. 2. The marginal border *a* may consist of only a single border as seen in Fig. 3 or a double border, as seen in the remaining figures.

In the "Add quads" cards, one of which is shown in Fig. 4, the key numeral *k* represents the addendum and the numerals *l* represent the various base numbers of the "quad." For the "Divide quads" card shown in Fig. 5, the key numeral *m* represents the divisor and numerals *n* represent the various dividends for the particular "quad." In the "Subtract quads" card shown in Fig. 6, the key numeral *p* represents the minuend and the numerals *q* represent the subtrahends for the particular quad.

The rules for playing the game at home and in the schoolroom are somewhat different and thus will be discussed separately.

In playing the home game the number of players is dependent on the number of packs of cards used. When playing with a single pack of cards, two to six persons may play. The procedure is as follows: (1) The pack is shuffled and each player is dealt six cards; (2) the remaining cards are placed face down on the table as a draw pile; (3) the player to the left of the dealer commences play by asking one of the other players for a card of a particular quad. For example, "John, do you have the $9\times7=63$ card?" It is necessary for the asking player to hold at least one of the cards of that particular "quad" before seeking the other cards thereof. If the response to the question is in the affirmative, the asked player gives the asking player the card. The asking player continues to play by asking the same or other players for certain other cards until he fails to receive the card asked for. Whereupon, he draws a card from the draw pile. If he is successful in drawing the card, last sought, he shows the card to the other players and continues to play as before. If he is unsuccessful in drawing the particular card sought, the player to his left continues the play; (4) as the four cards of a particular quad are acquired by a player, they are placed face up on the table before him; (5) when a player has no more cards left in his hand by reason of having given them away or having completed various "quads," he can take a card from the draw pile, when his turn occurs, and continue playing; (6) the game is finished when all the "quads" have been laid down. The player having laid down the most number of "quads" is declared the winner.

When playing the game in the schoolroom, the rules are somewhat different from those heretofore described for the home game. The pupils are first segregated into a number of equal groups depending on the size of the class. A leader or caller, a score keeper, and in certain instances a card collector are selected to conduct the game. The caller is usually the teacher. Each group of pupils are given the same set or sets of cards and these cards are then equally distributed to the members of the group. The set or sets of cards corresponding to the multiplication tables in most need of drill by the pupils are selected by the teacher. As the class becomes more proficient in their multiplication tables, more sets of cards may be used.

After the cards have been distributed to the members of the groups and the pupils have returned to their seats, the caller commences play by calling for a particular card; for example, "7×4=what?" The pupil holding this card, who first gives the correct answer, runs to the blackboard and writes out the entire problem. The pupil then gives his card to the card-collector and returns to his seat. The caller continues the

game by calling, preferably not in sequence, for each of the remaining cards of the particular quad in the same manner. The game is continued until all the quads have been called. The group having first answered correctly the most number of times, as determined by the score keeper's tally, is declared the winner. The pupils can measure their improvement in learning the various tables by checking the time it takes to complete the game.

A slightly modified way of playing the schoolroom game is that a caller, a score keeper, and a card collector are selected for each group. Each caller commences play by calling for each card of a particular "quad." Each caller may select the sequence in which the quads will be called. The other rules above discussed for the schoolroom game remain the same. The group having first completed all the quads is the winner.

Pupils having difficulty in mastering the various tables may supplement the schoolroom practice by playing the game at home as well.

Thus it will be seen that a game has been provided which may be played at home or school and incorporates oral, visual, and kinesthetic methods of learning. Furthermore the game affords pleasure to the player and thus its instructive value is more readily and effectively achieved. Also, an arithmetic drill game has been provided which can be played by any persons who can read the numbers and the arithmetical symbols. When the game is played by young children, it affords them an opportunity to become acquainted with various geometrical designs and combinations of colors while they are learning the arithmetical processes.

While a particular embodiment of this invention is shown above, it will be understood, of course, that the invention is not to be limited thereto, since many modifications may be made, and it is contemplated, therefore, by the appended claims, to cover any such modifications as fall within the true spirit and scope of this invention.

I claim:

1. A pack of cards for playing an educational card game based on the arithmetical arrangement of numbers and corresponding geometrical figures associated therewith, comprising the novel combination of cards having on their obverse sides a series of answered mathematical problems predicated upon a given base number and differently delineated areas whose outlines bear a predetermined and definite relationship with said base number, said cards being arranged in sets having a common base number, each card of a set carrying the results of a mathematical operation performed on said base number.

2. In a card game as claimed in claim 1, wherein the matematical operation is that of addition.

3. In a card game as claimed in claim 1, wherein the mathematical operation is that of subtraction.

4. In a card game as claimed in claim 1, wherein the mathematical operation is that of multiplication.

5. In a card game as clamied in claim 1, wherein the mathematical operation is that of division.

6. In a card game as claimed in claim 1, in which the delineated areas are differently colored and where, when portions of the colored areas overlap, the overlapped portions are of a color which is the result of the blending of the colors of the differently colored areas.

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