

Weekly Challenge #6: GridLines Twenty Four

Welcome to the Count on Us Secondary Challenge's sixth weekly challenge. This week instead of a challenge, we have a game for you to play.

The Game of GridLines Twenty Four

The following pages are a pack of playing cards. They are designed to be printed out onto card, then cut out to make two sets of 25 cards. Printing onto paper is fine. No printer? Just copy them onto sheets of paper. Any size, any type.

The aim of the game is to look at a set of 6 cards and find 4 cards that can make 24 with the usual rules. You must use each of the 4 cards you chose, once and once only, combining with $+$, $-$, \times , \div .

Playing the Game

You will need between 2 and 4 players.

There are two types of cards; (i) basic (marked B) and (ii) advanced (marked A).

To begin with, use only the basic cards. Shuffle the cards and place them face down on the table.

The oldest player takes the top 6 cards from the pack and places them face up on the table.

All players look at the cards. As soon as one player can see 4 cards that make 24, they say "Twenty Four".

All players stop. The player who found 24, explains how they made 24. If everyone agrees, they put the four cards at the bottom of the pack and replace them from the top. Play continues as soon as the player has **started** replacing the cards.

When you are ready, include the advanced cards. Shuffle the advanced cards and place them face down next to the basic cards. Place 4 basic and 2 advanced cards face up. Any solution **must** include *at least one* advanced card. Put the 4 used cards at the bottom of the correct pile!

If *at least two* players decide to give up on a set of 6 cards, put all of the cards back and deal 6 new cards.

Timing and Scoring

Use a timer to play round of 5 minutes. If time is up and a player has chosen 4 cards, they can finish their explanation and still score.

When a set is claimed, the player scores one point. If a player gives an explanation which is wrong, they lose 1 point. Carry on with the same cards. Have a score sheet to keep scores for each player as you play.

Extra Rules for Advanced Cards

- If any card chosen is negative, then the result can be either 24 or -24 .
- If an algebra card is used, then the value of x can be any number apart from 0.

HELP US SPREAD THE WORD...

We want to make sure everyone in London knows about your fantastic maths problem solving. Share your thinking, your solutions and photos on Twitter!

Keep them coming and remember - tag us and your school in any online activity.

#CountOnUs @mayorsfund @JPFoundation

1

B

1

B

2

B

2

B

3

B

3

B

4

B

4

B

5

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5

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-2

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-3

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-4

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-6

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-8

A

$\frac{1}{3}$

A

$\frac{1}{4}$

A

$\frac{3}{4}$

A

$\frac{2}{5}$

A

$\frac{5}{6}$

A

.2

A

.4

A

.5

A

.7

A

.8

A

$x^2 + 1$

A

$3x - 2$

A

$\frac{x}{x-1}$

A

$\frac{x^2}{4}$

A

$\frac{2}{x-2}$

A