CURIOSITY AT HOME

MATH BATTLES

Math Battles is a card game that can be played by any number of players, or alone. Practice your math skills and try to get as close to the winning number as possible without going over!

MATERIALS

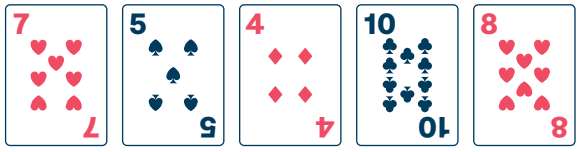
- Pack of playing cards, with face cards (Jacks, Queens and Kings) removed (substitute: 40 notecards labelled 1-10 with 4 of each number)
- Science notebook or paper
- Timer or phone with timer app (optional)
- Something to write with

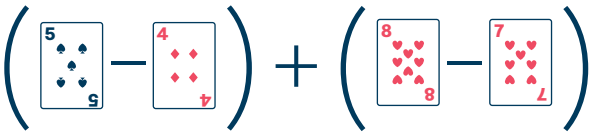
PROCEDURE

- Choose a winning number between 1 and 30.
- Draw five cards to put in the middle of the table.
- Set a timer for 2 minutes (optional)
- Write a mathematical equation using the numbers from these cards that gets as close to the winning number as possible without going over. You can use any mathematical operations you know: addition, subtraction, multiplication, division, and anything else you can think of.
  - Aces count as 1 for this game.
  - You can re-arrange the numbers in any order you like
  - You do not have to use all the cards in your equation, but you have to use at least two cards.
  - There might be more than one right answer.
- Write your equation in your science notebook.
- All equations should follow proper order of operations—make sure to use your parentheses (see "Did You Know?" for more information)
- Whoever gets closest to the winning number without going over wins a point for the round. If multiple players tie, they all win a point.
- Re-shuffle the cards from the round into the deck.
- A different player chooses the next winning number, and the game repeats.
- Whoever wins 7 points first wins the game

Example Game

Winning Number 2





$= 1 + 1$

$= 2$

Can you find more ways to win this round?

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EXPLORE MORE

Here are some ideas for rule variations you can try to make Math Battles even more challenging.

- Nobody is allowed to discard any cards – you must use all 5 cards in your equation
- Make your winning number contain a fraction
- Only award points when someone can get the exact winning number
- Set a 2-minute timer. Find as many different ways of reaching the winning number as possible. You get one point for each solution you come up with. Whoever has the most points at the end of 7 rounds wins.

DID YOU KNOW?

The order of operations is a rule that tells you the proper order in which to do mathematical operations within an equation. The proper order in which to do operations within an equation is to solve anything within parenthesis, followed by any exponents, then multiplication and division, finally followed by addition and subtraction. You can remember this with the acronym PEMDAS, or the mnemonic “Please Excuse My Dear Aunt Sally.” Within each step of the equation, if there are multiple operations to perform on that step, solve from left to right.

So, for example, to solve the equation

$$(3 + 2) \times 3 - 2 \div 2$$

you would solve in the following order:

$$(3 + 2) \times 3 - 2 \div 2$$

$$= 5 \times 3 - 2 \div 2$$

$$= 15 - 2 \div 2$$

$$= 15 - 1$$

$$= 14$$

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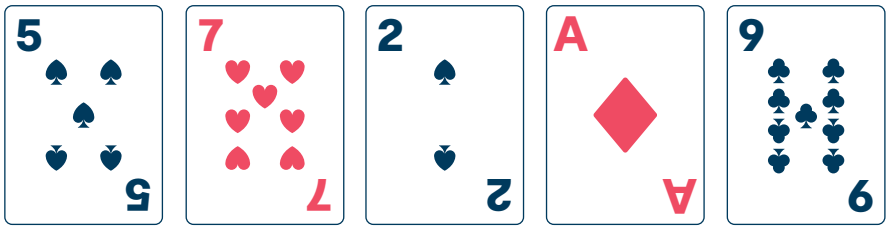
MATH BATTLES

K–2 GRADE EXPLORATION

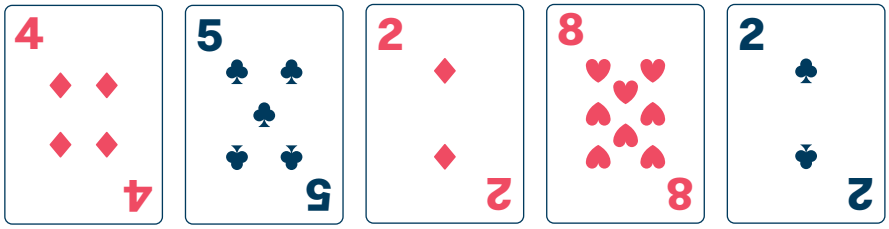
Here are some sets of cards that exactly add up to the winning number. Can you find a winning equation?

- You can use all the cards, but you don't have to.
- For each set of cards, there is more than one winning equation.
- See the bottom of the page for one possible answer.

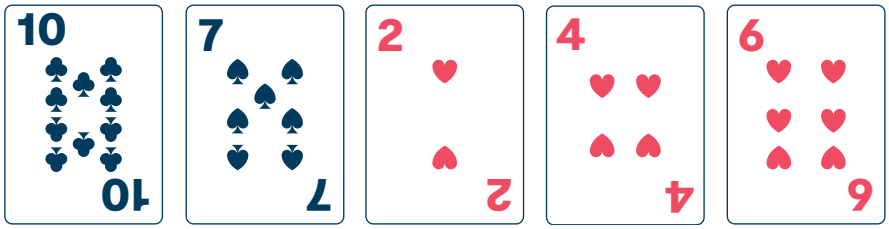
Winning Number 6



Winning Number 12



Winning Number 5



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Answers: 5 + 1 = 6; 4 + 8 = 12; 7 − 2 = 5

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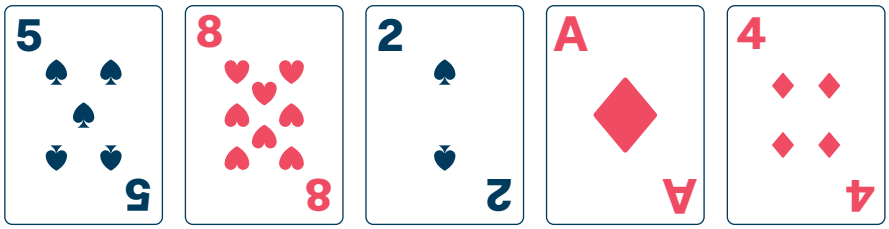
MATH BATTLES

3–5 GRADE EXPLORATION

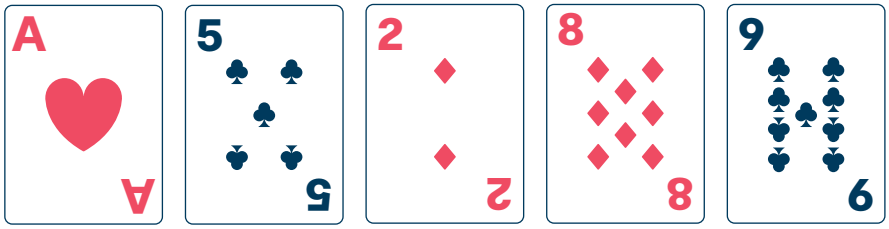
Here are some sets of cards that exactly add up to the winning number. Can you find a winning equation?

- Try finding an equation that uses all the cards.
- For each set of cards, there is more than one winning equation.
- See the bottom of the page for one possible answer.

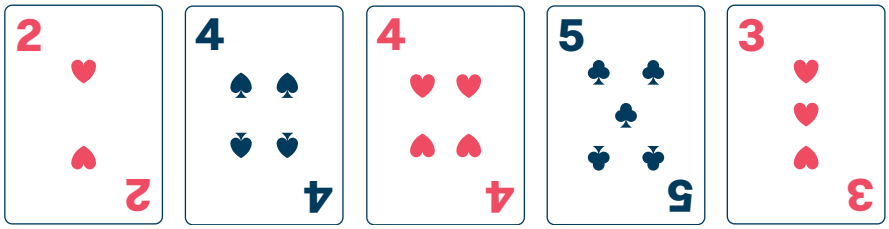
Winning Number 11



Winning Number 8



Winning Number 22



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Answers: 4 x 5 – 8 – 2 + 1 = 11; 9 + 1 – 5 x 2 + 8 = 8; 4 x 4 + 5 + 2 – 3 = 22

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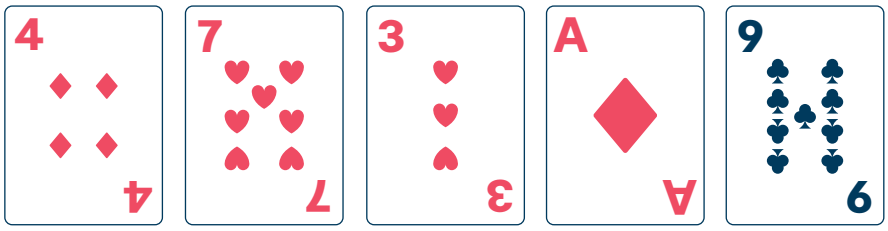
MATH BATTLES

6–8 GRADE EXPLORATION

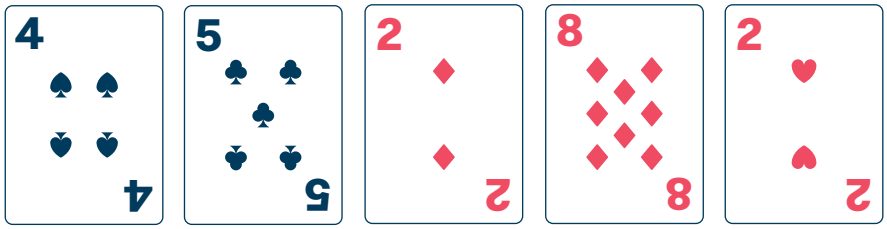
Here are some sets of cards that exactly add up to the winning number. Can you find a winning equation?

- Try finding an equation that uses all the cards.
- For each set of cards, there is more than one winning equation.
- Make sure to use proper order of operations
- See the bottom of the page for one possible answer.

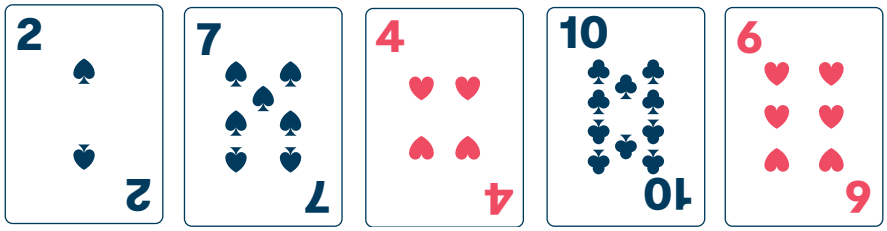
Winning Number 3



Winning Number 14



Winning Number 4



Answers: 4 – (7 + 3) / (1 + 9) = 3; 4^2 – 5 x 2 + 8 = 14; 7 – 2 – (10–6) / 4 = 4

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