Welcome to the Math Explorer Club!

October 2025 – March 2026

1h of fun for 12 weeks:

- **10 weeks of exploring**
- **2 weeks practice tests**

Math Kangaroo Competition:
March 19th, 2026

Lesson 1: Introduction to Problem Solving

What is Math Kangaroo?

Individual math competition for students 1-12 grade.

- 24 questions for levels 1-4
- 30 questions for level 5-12
- 75 minutes
- Easy problems (3 points), medium problems (4 points), hard problems (5 points)

What is problem solving?

Problems are different from exercises.

- In an exercise, we are practicing a technique or a skill. You know how to approach it and you just need to go through the steps to solve it.
- In a problem, we don't know at first how to approach it and it demands much thought and resourcefulness. Problems often involve trying different strategies, making mistakes, and starting over, until a solution is found.

Math Kangaroo
Level 5-6

4-Step Problem Solving Strategy

A problem is a question that demands much thought and resourcefulness before the right approach is found. These steps can help you solve many types of problems

1. Understand the problem. Determine what it is asking.

2. Plan how to solve the problem. How can you tackle this problem? What do you need to do to solve it?

3. Carry out your plan. Carefully complete your calculations or organize your thoughts and steps.

4. Look back to check and reflect. Does this answer make sense? Did you answer the correct question?

Math Kangaroo
Level 5-6

Introduction

Number Patterns

MK 2015 #4

1. There are 10 ducks. 5 of these ducks lay an egg every day. The other 5 lay an egg every other day. How many eggs do the 10 ducks lay in a period of 10 days?

(A) 75 (B) 60 (C) 50 (D) 25 (E) 10

Algebraic Thinking

Math Kangaroo
Level 5-6

Introduction

MK 2012 #10

2. Vivien and Mike were given some apples and pears by their grandmother. Altogether, they had 25 pieces of fruit in their baskets. On the way home, Vivien ate 1 apple and 3 pears and Mike ate 3 apples and 2 pears. At home they found out that they brought home the same number of pears as apples. How many pears were they given by their grandmother?

(A) 12 (B) 13 (C) 16 (D) 20 (E) 21

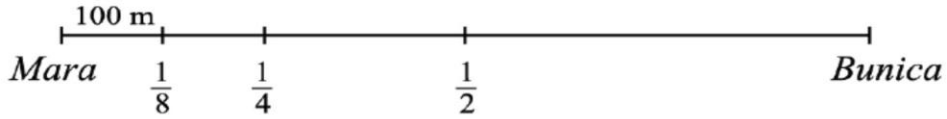
Ratio & Proportion

Math Kangaroo
Level 5-6

Introduction

MK 2013 #3

3. Find the distance which Mara covers to get to her friend Bunica.



(A) 300 m (B) 400 m (C) 800 m (D) 1 km (E) 700 m

Math Kangaroo
Level 5-6

Introduction

Multiples, Factors, and Divisibility

MK 2003 #4

4. The least positive integer which is divisible by 2, 3, and 4 is:

(A) 1 (B) 6 (C) 12 (D) 24 (E) 36

Time, Clock, and Calendar

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Level 5-6

Introduction

MK 2005 # 10

5. How many hours is half of a third part of a quarter of 24 hours?

(A) 1/3 (B) 1/2 (C) 1 (D) 2 (E) 3

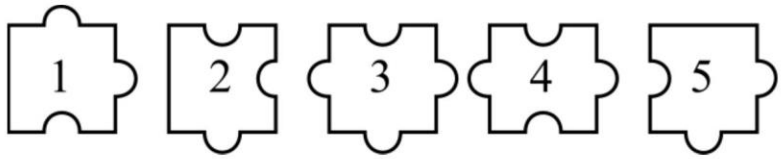
2D Geometry

Math Kangaroo
Level 5-6

Introduction

MK 1998 #3

6. Among the puzzle pieces below, two have the same area. Which two?



(A) 4 and 2 (B) 1 and 5 (C) 1 and 3 (D) 4 and 5 (E) 3 and 5

3D Geometry

Math Kangaroo
Level 5-6

Introduction

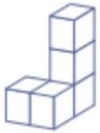
MK 2011 # 9

7. Which of the pieces below is needed to make the solid shown to the right into a prism?

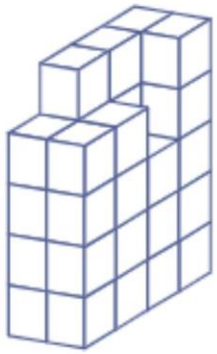
(A) 

(B) 

(C) 

(D) 

(E) 



Wrap Up

- [x] The 4-step method is a flexible guide to solve mathematical problems
    1. Understand what the problem asks
    2. Plan how to solve
    3. Carry out the plan
    4. Look back to check your answer

- [x] 4 major math concepts to learn in level 5-6
    1. Number systems
    2. Ratios
    3. Expressions and equations
    4. Geometry

Genius Hour time

A great way to become a better problem solver is to create your own problem. This course has a Genius Hour project. You will create your own Math Kangaroo type of problem and present it during our last class. It may sound hard but remember that good problems get inspiration from hobbies and interests in real life. Let's take a look at a problem created by one of our Math Kangaroo students.

Math Kangaroo
Level 5-6

Introduction

Exit ticket and Genius Hour time

Soccer Tournament

By Akshay

Sixty teams competed in a soccer tournament with 3 rounds. Half of the teams were eliminated in the first round. 2/3 of the remaining teams were eliminated in the second round, and 4/5 of the remaining teams were eliminated in the final round. How many teams got prizes at the end?
A) 4 B) 10 C) 1 D) 2

Solution:
Since 1/2 teams were eliminated in the first round, 1/2 teams remained, that is, 30 teams (60 divided by 2) remained after 1st round.
In the second round, since 2/3 of the teams were eliminated, 1/3 remained, that is, 10 teams (30 divided by 3) remained after 2nd round.
In the final round, because 4/5 teams got eliminated, 1/5 teams remained, that is, 2 (10 divided by 5).
Two teams got prizes at the end. **Answer: 2**

Round	Calculatoins	# of Teams
1	60:2	30
2	1/3 of 30	10
3	1/5 of 10	2

Problem Type: Word problem
Strategies: Make a table to show the different steps

Genius Hour project:

At the end of this course, you will have opportunity to present a problem created by you and share your clever solution(s) with the entire class and their guests. Here is a graphic organizer which can help you get started. Don't worry, you will have plenty of chances to work on it during the next classes.

STEPS	HOW
Step 1. Pick a topic and type of problem	Get inspiration from your life- your hobbies and interests. Do you play a sport? Scoring may make a good number problem. Do you like fold origami? Crease patterns may make a good spatial thinking problem. Do you like debating? Making the case for an argument may make a good logic reasoning problem.
Step 2: Pick a strategy or a set of strategies that can help solve your problem	Creating a problem that entails multiple strategies is the best! It means that it is challenging but still can be tackled with the strategies you learn in this course. You will see many examples in the following classes that utilize multiple strategies.
Step 3: Craft your problem and try out on your family members	Use interesting pictures and good writing techniques to make the problem clear, concise, and most of all gripping for your fellow problem solvers. The problem you saw is one example. As you start working on your draft, you will share it in class and get feedback.
Step 4: Showtime! Present your problem and help your classmates tackle it in the last class of this course	You will have 3 minutes to present your problem and help the class solve it. Creativity in presentation is most encouraged.