



Problem of the Week

Problem of the Week is designed to provide students with an ongoing opportunity to solve mathematical problems. Each week, problems from various areas of mathematics are posted online and e-mailed to teachers for use with their students.

Grade 3/4

Problem A: Perfect Punch

Su is going to make punch for her friends. She wants to mix 3 L of orange juice, 1 L of pop, $\frac{1}{2}$ L of grape juice, and 300 mL of cranberry juice in a punch bowl.

(a) To avoid spilling, Su plans to use a punch bowl with a capacity of at least 200 mL more than the liquid it holds. What is the smallest capacity that her punch bowl should have?

(b) Su has cups that can each hold 300 mL of punch. How many of these cups can she fill with the punch she makes?



Grade 5/6

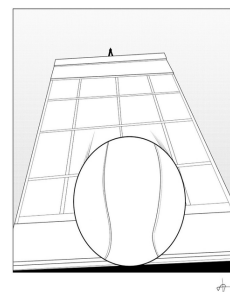
Problem B: Boing! Boing! Boing!

A Superball is a special kind of ball that will always bounce to half of the height from which it fell. Supposing that it is dropped from a building that is 128 m tall, answer the following questions.

(a) How high will it bounce after it hits the ground for the third time?

(b) How many times must the ball hit the ground so that the next bounce has a height of 25 cm?

(c) How tall would a building have to be if, after hitting the ground ten times, the ball bounces to 1m? Is there a building this tall?

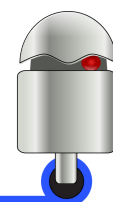


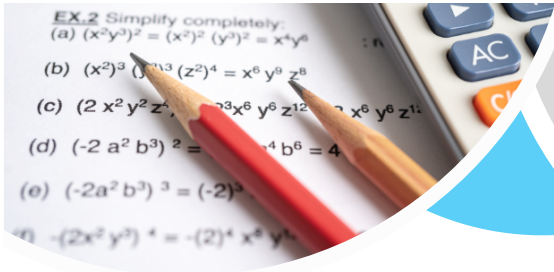
Grade 7/8

Problem C: Robot Painter

Tesfaye built a robot that can paint a path as it moves around a piece of paper. The robot uses the Cartesian coordinate system and starts on the point (0, 0). Users enter a list of points and the robot moves from one point to the next point in the list in a straight line, painting the path it travels. After it reaches the last point, it goes back to the point (0, 0).

Tesfaye entered the following coordinates into the robot: (1,1), (-1,3), (-3,3), (-3,1), and (-2,-2). Calculate the area of the shape that the robot painted.





The CENTRE for EDUCATION
in MATHEMATICS and COMPUTING

Problem of the Week

SCAN ME



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Grade 3/4

Problem A: Deciding About Data

The Webb family is trying to decide on a new monthly internet plan. There are three choices:

Plan A: \$10 for the first 10 GB of data, and each additional 2 GB costs \$5.

Plan B: \$40 for the first 20 GB of data, and each additional 10 GB costs \$10.

Plan C: \$80 for unlimited GB of data.

After keeping track of data used, the family decides they will use between 25 GB and 40 GB of data each month. Which plan should the Webb family choose?

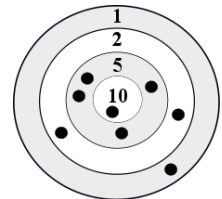


Grade 5/6

Problem B: Who Hit the Middle?

For the following dart board, any dart landing in the inner circle will receive 10 points. Any dart landing in the first band will receive 5 points. Any dart landing in the second band will receive 2 points. Any dart landing in the third band will receive 1 point. Serena and Ebony each threw four darts. The locations where the eight darts landed are shown as black dots on the diagram.

- What was the total number of points scored by the two players?
- If Ebony's total score was 1 more than Serena's, what was each person's score?
- What individual shots could each player have had to get their scores?
- Whose dart landed in the inner circle?



Grade 7/8

Problem C: Counting Coins

Inaaya has a jar of coins containing only nickels, dimes, and quarters. A nickel is worth 5 cents, a dime is worth 10 cents, a quarter is worth 25 cents, and a dollar is worth 100 cents.

The ratio of the number of quarters to the number of dimes to the number of nickels in the jar is 9 : 3 : 1. The total value of all the coins in the jar is \$18.20. How many coins does Inaaya have in her jar?



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