

MATHCOUNTS®

2026 CHAPTER COMPETITION Team Round Problems 1–10

School _____
Team Members _____, Captain

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

This section of the competition consists of 10 problems which the team has 20 minutes to complete. Team members may work together in any way to solve the problems. Team members may talk to each other during this section of the competition. This round assumes the use of calculators, and calculations also may be done on scratch paper, but no other aids are allowed. All answers must be complete, legible and simplified to lowest terms. The team captain must record the team's official answers on his/her own competition booklet, which is the only booklet that will be scored. If the team completes the problems before time is called, use the remaining time to check your answers.

Total Correct	Scorer's Initials

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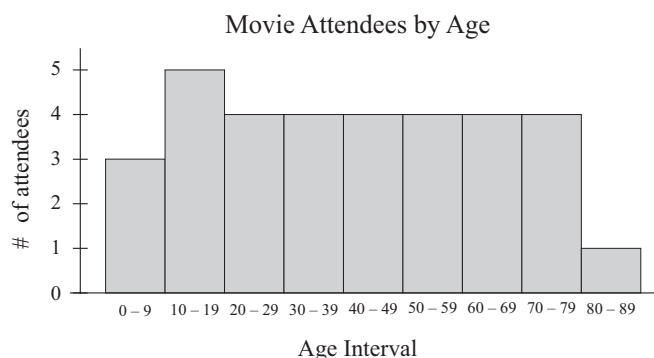
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1. Canadian dollars The value of one US dollar varies between a low of 1.33 and a high of 1.39 Canadian dollars during a certain week. Michelle exchanges 1500 US dollars for Canadian dollars. What is the range of the possible amount of Canadian dollars she will receive after the exchange?
2. degrees The degree measures of the interior angles of a convex pentagon are $x + 15$, $2x + 25$, $3x - 20$, $4x + 30$, and $5x + 10$. These five angles sum to 540 degrees. What is the degree measure of the largest angle of the pentagon?
3. _____ Two right circular cylinders, X and Y, are such that cylinder Y has a height three times that of cylinder X and a base radius one-half that of cylinder X. What is the ratio of the volume of cylinder X to the volume of cylinder Y? Express your answer as a common fraction.
4. ways If five standard, fair six-sided dice are rolled, in how many ways can the sum of the rolls be at least 26, if the order of the rolls matters?
5. \$ At a movie premiere, the price of a ticket depends on age. Children, ages 9 and under, pay half as much as seniors, ages 60 and over. Seniors pay half as much as adults, ages 10 to 59. The histogram below shows the ages of the attendees at the movie. The first interval represents ages 0 – 9, the second interval represents ages 10 – 19, and so on, up to ages 80 – 89. If the total ticket revenue from this showing was \$840, what was the price, in dollars, of one child ticket?



6. _____ % Farmer Julie is planning on increasing the length and width of her rectangular wheat field, each by the same percentage. The crop yield per acre will not change, and neither will the water required for each acre. To account for this, Julie must double the capacity of her farm's water reservoir. By what percent is Julie planning on increasing each dimension of her wheat field? Express your answer as a decimal to the nearest tenth.
7. \$ _____ Noah is mixing chocolate chips and peanuts, in equal parts by weight, to create a two-pound bag of snack mix he will sell. The chocolate chips cost him \$12 for 3 pounds, while the peanuts cost \$18 for 6 pounds. He wants his cost to be 80% of his selling price. At what price should he sell a two-pound bag of the mixture?
8. _____ On any given school day, Hill Valley Middle School teacher Leilani Goodwin wears jeans to school with probability 20%, and each day is independent of all other days. What is the probability that in a five-day school week, Ms. Goodwin wears jeans on exactly two days? Express your answer as a common fraction.
9. _____ se-
quences A sequence is said to be non-decreasing when each term is greater than or equal to the term before it. For example, 4,4,4,5,6 is non-decreasing, but 4,4,4,3,5,6 is not because 3 is less than 4, and 3 comes after 4 in the sequence. How many non-decreasing sequences of positive integers with length 2026 terms start with 1 and end with 3?
10. _____ units² Three unit circles are externally tangent to one another, as shown. From each circle's center, there are two lines that pass through the center and are tangent to exactly one of the other circles. These six lines form a hexagon. What is the area inside this hexagon but outside the three circles? Express your answer as a decimal to the nearest hundredth.

