




# MATHCOUNTS®

## 2026 School Competition Booklet

### COMPETITION COACH RESOURCES

-  School Competition Booklet
-  Countdown Round PowerPoint® & Blacklines
-  Competition Updates & Edits

[www.mathcounts.org/competitioncoaches](http://www.mathcounts.org/competitioncoaches)

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## GENERAL INSTRUCTIONS

This section contains instructions, rules and procedures for administering the MATHCOUNTS School Competition. It is important that the coach look upon coaching sessions during the academic year as opportunities to develop better mathematics skills in all participants. Therefore, the coach is encouraged to postpone the selection of those students who will be competing at the Chapter Competition until just prior to the event in February. **Selection of the students need not be based on the results of a school competition.** For this reason, schools may deviate from these rules in administering the School Competition. However, experience with the official rules may aid the students who compete at the chapter, state and national levels.

Individual scores are kept for each participating student, and a team score is calculated for each team. Before beginning the competition, divide participants into teams of four students and designate a captain for each team.

At the end of each round of the competition, collect all competition booklets, problems and scratch paper.

1. Use of notes and other aids (including graph paper, rulers, compasses, protractors, reference tables, and dictionaries) is not permitted.
2. The use of connected wearable technology and “smart” devices including, but not limited to *cellular phones, smartphones, laptops, tablets, e-readers, calculator wrist watches and smartwatches* is prohibited. Students are not permitted to access such devices during any round of the competition.
3. **The Target and Team Rounds assume the use of a calculator.** Calculator use is permitted in these rounds only. Any calculator that does not contain a QWERTY (i.e., typewriter-like) keypad is permitted. Calculators that have the ability to enter letters of the alphabet but do not have a keypad in a standard typewriter arrangement are acceptable. *Students may not use calculators to exchange information with another person or device during the competition.*
4. Talking and signals are permitted only during the Team Round.
5. Before the competition, coaches should review with students the rules for acceptable forms of answers, found in the SCORING section of this booklet.

## SPRINT ROUND INSTRUCTIONS

1. Distribute scratch paper.
2. Distribute Sprint Round booklet.
3. Instruct each student to print his/her name on the front of the booklet, in the allotted space.
4. Instruct each student to write the digits 0 through 9 on the booklet, in the spaces provided. *This may be used during scoring to clarify written answers that are not legible.*
5. Read aloud instructions printed on the front of the booklet while students read instructions silently.
6. Instruct students to begin. Start timing.
7. After 37 minutes, give a three-minute warning.
8. After 40 minutes, say, **“Stop, pencils down,”** and instruct students to close competition booklets.

## TARGET ROUND INSTRUCTIONS

1. Distribute scratch paper.
2. Distribute the first (next) pair of Target Round problems, and instruct each student to print his/her name in the allotted space.
3. Read aloud the instructions printed on the cover of the first pair of problems.
4. Instruct students to begin. Start timing.
5. Give a 30-second warning at 5 minutes 30 seconds.
6. After 6 minutes, say, **“Stop, pencils down.”**
7. Collect all papers.
8. For each of the next three pairs of problems, repeat step 2, then steps 4 through 7.

## TEAM ROUND INSTRUCTIONS

1. Arrange all teams (of four students) in a room with at least five feet of unoccupied space between teams.
2. Distribute scratch paper.
3. Distribute Team Round booklet to each person, and instruct team captain to print team name and team members' names on his/her booklet. This becomes the team's official answer booklet.
4. Read aloud the instructions printed on the cover of the booklet while students read the instructions silently.
5. Instruct students to begin. Start timing.
6. After 17 minutes, give a three-minute warning.
7. After 20 minutes, say, **“Stop, pencils down,”** and instruct students to close competition booklets.

## COUNTDOWN ROUND INSTRUCTIONS

The Countdown Round is a mandatory component at the National Competition, and it is used to determine the final rank of the top competitors. At the chapter and state levels, the use of the Countdown Round, officially or unofficially, is at the discretion of the state coordinator. When used officially, the Countdown Round will adhere to the rules presented below. The instructions may be modified as necessary at the school level. **This round is available only in PowerPoint® format for the School Competition. The PowerPoint file can be downloaded by logging in at [www.mathcounts.org/competitioncoaches](http://www.mathcounts.org/competitioncoaches).**

1. Based on scores in the Sprint and Target Rounds, rank all competitors and select the top 25%, up to ten students, to compete in the Countdown Round.
2. Seat the two lowest-ranked students so they are in clear view of the moderator. Each competitor should be given scratch paper and sharpened pencils before the round begins. Invite the competitors to introduce themselves and, if applicable, test their buzzers.
3. Read the following statement to all students who will be competing in the round:

**In this round, I will read each problem aloud as it is presented to you. You may use the scratch paper and pencil in front of you to calculate your answer to the problem. You are not allowed to use calculators during this round.**

**You will have a maximum of 45 seconds to solve the problem after it is presented. You will be given a ten-second warning before time expires. As soon as you have solved the problem, press your buzzer.** [Schools may have alternate methods of determining order of finish and should adjust directions to students accordingly.] **I will call on the first person who signals. Do not announce your answer until I call on you. Each time you wish to answer, you must signal, though you may not answer more than once for any question. If you do not signal before you answer, your answer will be disqualified. If you answer after signaling but before I call on you, your answer will be accepted, but I ask that you please wait until you hear your name so that there is no confusion.**

**Once I call on you, you will have three seconds to begin your answer. Your opponent may continue working while you are responding.**

**If you answer correctly, you will score one point in the round. If you answer incorrectly, your opponent will have the remainder of the allotted 45 seconds to press his/her buzzer for an opportunity to answer the problem and score a point in the round.**

**Whoever answers *the most* of the three problems correctly (*not necessarily two out of the three*) will progress to the next round to compete for the next place. If you are tied after three questions, I will declare a *sudden victory* situation. I will describe the rules for this process should this situation arise.**

**It is very important that these rules be followed exactly. If you answer without signaling your buzzer, your answer will be disqualified. Are there any questions?**

[Note that the above procedure does not necessarily require a student to answer two out of the three problems correctly. For instance, a student answering only one problem of three will progress to the next round if his/her opponent has not correctly answered any questions in the round.]

4. Conduct the round as described above. After the winner of each round is identified, dismiss his/her opponent, and ask the next written competition place-holder to be seated to participate in the next round. Invite the new competitor to introduce himself or herself and, if applicable, test his/her buzzer.
5. If a sudden victory situation occurs, read the following statement to the students:

**Since you are tied at the end of three problems, I must declare a sudden victory situation. I will now continue to read problems to both of you. Rules for answering problems remain the same as before. The first one of you to answer a problem correctly will advance to the next round.**

6. After the winner of this round is identified, congratulate the winner, have the two competitors shake hands and call for applause for the student who has lost and is leaving the stage. Continue in this manner after the winner of each round is identified.
7. Just before the 4th-ranked student competes in his/her first round, read the following statement to the students:

**For the final four rounds, our rules will change slightly. In order to win a round, our Mathletes will have to answer three problems correctly. The first Mathlete in each round to answer three problems correctly will progress to the next round.**

8. Repeat procedure until the Champion of the Countdown Round is identified.

\*Rules for the Countdown Round change for the National Competition.

## SCORING

1. The following rules explain acceptable forms for answers.
  - a. **Units of measurement are not required in answers, but they must be correct if given.** When a problem asks for an answer expressed in a specific unit of measure or when a unit of measure is provided in the answer blank, equivalent answers expressed in other units are not acceptable. For example, if a problem asks for the number of ounces and 36 oz is the correct answer, 2 lbs 4 oz will not be accepted. If a problem asks for the number of cents and 25 cents is the correct answer, \$0.25 will not be accepted.
  - b. **All answers must be expressed in simplest form.** A “common fraction” is to be considered a fraction in the form  $\pm \frac{a}{b}$ , where  $a$  and  $b$  are natural numbers and  $\text{GCF}(a, b) = 1$ . In some cases the term “common fraction” is to be considered a fraction in the form  $\frac{A}{B}$ , where  $A$  and  $B$  are algebraic expressions and  $A$  and  $B$  do not share a common factor. A simplified “mixed number” (“mixed numeral,” “mixed fraction”) is to be considered a fraction in the form  $\pm N\frac{a}{b}$ , where  $N$ ,  $a$  and  $b$  are natural numbers,  $a < b$  and  $\text{GCF}(a, b) = 1$ .
  - c. **Ratios should be expressed as simplified common fractions** unless otherwise specified.
  - d. **Radicals must be simplified.** A simplified radical must satisfy: 1) no radicands have a factor which possesses the root indicated by the index; 2) no radicands contain fractions; and 3) no radicals appear in the denominator of a fraction. Numbers with fractional exponents are *not* in radical form.
  - e. **Answers to problems asking for a response in the form of a dollar amount or an unspecified monetary unit (e.g., “How many dollars...,” “How much will it cost...,” “What is the amount of interest...”)** should be expressed in the form **(\$)*a.bc* or *a.bc* (dollars)**, where  $a$  is an integer and  $b$  and  $c$  are digits. The *only* exceptions to this rule are when  $a$  is zero, in which case it may be omitted, or when  $b$  and  $c$  are both zero, in which case they both may be omitted. Answers in the form **(\$)*a.bc* or *a.bc* (dollars)** should be rounded to the nearest cent unless otherwise specified.
  - f. **Do not make approximations for numbers** (e.g.,  $\pi$ ,  $\frac{2}{3}$ ,  $5\sqrt{3}$ ) in the data given or in solutions unless the problem says to do so.
  - g. **Do not perform any intermediate rounding** (other than the “rounding” a calculator performs) when calculating solutions. All rounding should be done at the end of the calculation process.
  - h. **Scientific notation** should be expressed in the form  $a \times 10^n$  where  $a$  is a decimal,  $1 \leq |a| < 10$ , and  $n$  is an integer.
  - i. **An answer expressed to a greater or lesser degree of accuracy than called for in the problem will not be accepted. Whole number answers should be expressed in their whole number form.** Thus, 25.0 will not be accepted for 25, and 25 will not be accepted for 25.0.
  - j. **The plural form of the units will always be provided in the answer blank, even if the answer appears to require the singular form of the units.**
2. Specific instructions stated in a given problem should take precedence over any general rule or procedure.
3. Scores are kept for individuals and teams. The **individual score** is the number of Sprint Round questions answered correctly plus two times the number of Target Round questions answered correctly. **The maximum possible individual score is 46.** The **team score** is calculated by dividing the sum of the team members’ individual scores by four, and then adding two times the number of Team Round questions answered correctly. **The maximum possible team score is 66.**

Because the School Competition is not the only mechanism available to determine which students should advance to the Chapter Competition, ties on the School Competition needn’t be broken. At the Chapter, State and National Competitions, however, ties among individuals or teams will be broken by comparing the scores of specific rounds.

### Sprint Round Answers

1. \$72

2. 12 integers

3. 30

4. 35 degrees

5. 6

6. 39

7. \$4 or \$4.00

8. 20

9. 80

10. 400 cm<sup>2</sup>

11. 15/28

12. 135

13.  $-4/3$

14. 27 in<sup>2</sup>

15. 18 points

16. 20 sets

17. 15

18. 110 pounds

19. 41%

20. 4 sequences

21. 13,462

22. 188 units

23. 54 m<sup>2</sup>

24. 6

25. 4

26. 27 combinations

27.  $70\sqrt{3}$  units<sup>2</sup>

28. 210 ways

29. 55/216

30. 12 miles

### Target Round Answers

1. 291 feet

3.  $(-1, 1)$

5. 18.3 units<sup>2</sup>

7. 1224 in<sup>2</sup>

2. 51

4. 92

6. 264/4165

8. 720/17 units<sup>2</sup>

### Team Round Answers

1. 14 matches

2. 15 numbers

3. 16 seconds

4. 41

5. 63

6. 7/45

7. 24 years old

8. 315.36 cm<sup>2</sup>

9. 8 cents

10. 84 in<sup>2</sup>

# MATHCOUNTS®

## 2026 School Competition Sprint Round Problems 1–30

### HONOR PLEDGE

I pledge to uphold the highest principles of honesty and integrity as a Mathlete®. I will neither give nor accept unauthorized assistance of any kind. I will not copy another's work and submit it as my own. I understand that any competitor found to be in violation of this honor pledge is subject to disqualification.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Printed Name \_\_\_\_\_

School \_\_\_\_\_

### DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

This section of the competition consists of 30 problems. You will have 40 minutes to complete all the problems. You are not allowed to use calculators, books or other aids during this round. Calculations may be done on scratch paper. All answers must be complete, legible and simplified to lowest terms. Record only final answers in the blanks in the left-hand column of the competition booklet. If you complete the problems before time is called, use the remaining time to check your answers.

In each written round of the competition, the required unit for the answer is included in the answer blank. The plural form of the unit is always used, even if the answer appears to require the singular form of the unit. The unit provided in the answer blank is the only form of the answer that will be accepted.

Total Correct	Scorer's Initials

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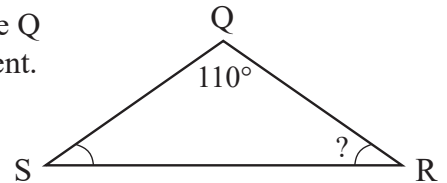
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1. \$ \_\_\_\_\_ Each of three friends pays \$24 for tickets to a concert. What is their total cost for the concert tickets?

2. \_\_\_\_\_ integers How many integers between 51 and 75 are even?

3. \_\_\_\_\_ If  = 9 and  = 3, what is the value of  $4 \times \text{watermelon slice} - 2 \times \text{strawberry}$ ?

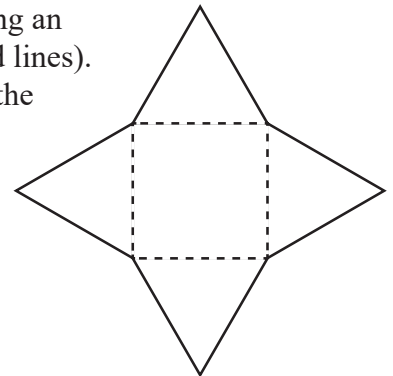
4. \_\_\_\_\_ degrees In isosceles triangle QRS, the measure of angle Q is 110 degrees, and angles R and S are congruent. What is the measure of angle R, in degrees?



5. \_\_\_\_\_ If the first five terms of an arithmetic sequence are 51, 42, 33, 24, 15, what is the sixth term of this sequence?



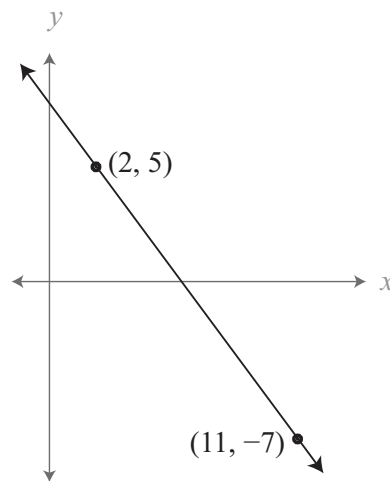
6. \_\_\_\_\_ What is the sum of the distinct positive divisors of 18?
7. \$ \_\_\_\_\_ A store sells notebooks for \$2 each. If Lina buys 3 notebooks and pays with a \$10 bill, how much change should she receive?
8. \_\_\_\_\_ When 15 is subtracted from  $n$ , the result is one-fourth  $n$ . What is the value of  $n$ ?
9. \_\_\_\_\_ Sage calculated the mean (average) of her four science test scores so far this year to be 86. If three of her scores were 92, 84 and 88, what was her fourth test score?
10. \_\_\_\_\_  $\text{cm}^2$  The figure shown is an octagon, formed by attaching an equilateral triangle to each side of a square (dashed lines). If the perimeter of this octagon is 160 cm, what is the area of the square, in  $\text{cm}^2$ ?



11. \_\_\_\_\_ If  $p$  divided by  $\frac{5}{7}$  equals  $\frac{3}{4}$ , what is the value of  $p$ ? Express your answer as a common fraction.

12. \_\_\_\_\_ Clara multiplies 2026 by 4 and then subtracts 45. David subtracts 45 from 2026 first, then multiplies the result by 4. What is the value of Clara's result minus David's result?

13. \_\_\_\_\_ What is the slope of the line containing the points  $(2, 5)$  and  $(11, -7)$ ? Express your answer as a common fraction.



14. \_\_\_\_\_ in<sup>2</sup> The length of a rectangle is equal to three times its width. If the rectangle's perimeter is 24 inches, what is its area?

15. \_\_\_\_\_ points The stem-and-leaf plot shows the points a basketball player scored in 21 games. What is the player's median number of points scored per game?

Points per Game

0		4 6 8 9
1		0 2 2 4 5 7 8 9 9
2		0 1 1 3 4 4 6 8

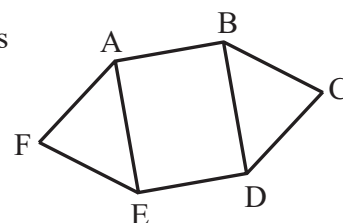
<b>Key</b> 1   7 = 17
--------------------------

16. \_\_\_\_\_ sets Sam is going to perform a juggling act for Crichton Middle School's talent show. The performance will involve juggling three balls, each a different color. Sam must choose from red, blue, green, orange, purple and brown balls. How many different sets of three balls can Sam choose?
17. \_\_\_\_\_ If  $\frac{7^m}{7^{11}} = 7^4$ , what is the value of  $m$ ?
18. \_\_\_\_\_ pounds Three large dogs, Buddy, Koda and Maple, together weigh 400 pounds. If Maple weighs 30 pounds more than Buddy but 10 pounds less than Koda, what is Buddy's weight, in pounds?
19. \_\_\_\_\_ % Laurel, one of two candidates in the recent presidential election in the country of Mathia, received 226 of the first 400 votes counted. After the remaining 300 votes were counted, the outcome was a tie. What percentage of the last 300 votes counted were for Laurel? Express your answer to the nearest percent.
20. \_\_\_\_\_ sequences How many arithmetic sequences with exclusively integer terms have a first term of 20 and a last term of 26?

21. \_\_\_\_\_ What is the sum of all positive four-digit integers  $ABCD$  such that the two-digit numbers  $AB$ ,  $BC$  and  $CD$  are each perfect squares?

22. \_\_\_\_\_ units A rectangle has integer side lengths, with the shorter side at most 7 units and the longer side at most 10 units. If the rectangle's area is at least 50 square units, what is the sum of the perimeters, in units, of all possible qualifying rectangles with distinct areas?

23. \_\_\_\_\_  $\text{m}^2$  Equilateral hexagon  $ABCDEF$  with side length 5 m has the property that  $ABDE$  is a rectangle with  $BD = 6$  m. What is the area of hexagon  $ABCDEF$ ?



24. \_\_\_\_\_ Ben chooses a perfect cube between 20 and 900. He tells Adam the sum of the first and last digit of the cube he chose and asks Adam to identify which cube it is. Adam correctly replies that he cannot be sure based on this information alone. What sum did Ben tell Adam?

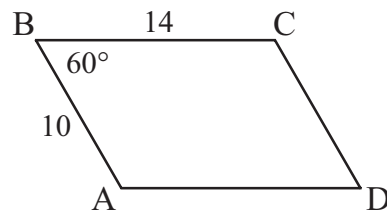
25. \_\_\_\_\_ What is the least positive integer  $x$  for which the quantity  $\frac{20+x}{26+x}$  is at least 80 percent?

26. \_\_\_\_\_ combinations

At Sugar Loop Donuts, one sprinkle donut costs \$1.32. Liam has an ample supply of 1-cent, 10-cent and 50-cent coins. In how many different combinations of these coins can he pay for one sprinkle donut with exact change?

27. \_\_\_\_\_ units<sup>2</sup>

If parallelogram ABCD has  $AB = 10$  units,  $BC = 14$  units and  $m\angle ABC = 60$  degrees, what is its area? Express your answer in simplest radical form.



28. \_\_\_\_\_ ways

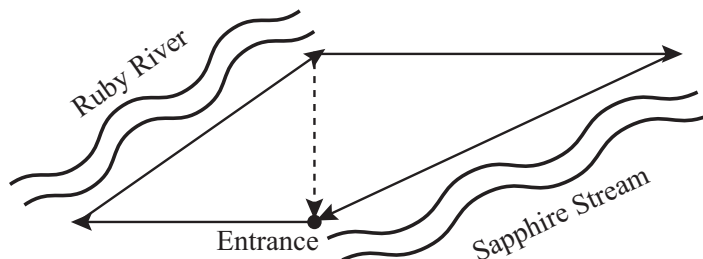
A gym teacher wants to divide a class of 12 students into 2 teams of 6 to play volleyball. If Elijah and Ryan must be on the same team, in how many ways can the 2 teams be formed?

29. \_\_\_\_\_

Anne, Sasha and Marcy each roll a fair standard six-sided die. What is the probability that the number showing on Anne's die is strictly greater than the numbers showing on both Sasha's and Marcy's dice? Express your answer as a common fraction.

30. \_\_\_\_\_ miles

Stacy is jogging in a park that has two rivers. From the entrance, she first follows the Ruby River Path, which runs 2.0 miles due west and then 2.5 miles in a straight line along the river. At the end of this path, there is a shortcut due south to the park entrance, but instead, Stacy takes the Sapphire Stream Path. This path runs 3.6 miles due east and then follows the stream in a straight line back to the park entrance. What is the total distance that Stacy jogs?





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## 2026 School Competition Target Round Problems 1 & 2

Name \_\_\_\_\_

School \_\_\_\_\_

### DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

This section of the competition consists of eight problems, which will be presented in pairs. Work on one pair of problems will be completed and answers will be collected before the next pair is distributed. The time limit for each pair of problems is six minutes. The first pair of problems is on the other side of this sheet. When told to do so, turn the page over and begin working. 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. Record only final answers in the blanks in the left-hand column of the problem sheets. If you complete the problems before time is called, use the time remaining to check your answers.

Problem 1	Problem 2	Scorer's Initials

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1. \_\_\_\_\_ feet     Alex is building a scale model of his home town. The town hall in the model measures 20 inches tall, and the clock tower measures 30 inches tall. In reality, the clock tower stands 97 feet higher than town hall. How tall is the clock tower, in feet?

2. \_\_\_\_\_     Positive integers  $a$ ,  $b$  and  $c$  are consecutive in that order and satisfy the equation  $ab + c = 290$ . What is the value of  $a + b + c$ ?



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## 2026 School Competition Target Round Problems 3 & 4

Name \_\_\_\_\_

School \_\_\_\_\_

**DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.**

Problem 3	Problem 4	Scorer's Initials

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3. \_\_\_\_\_ ( \_\_\_\_\_ , \_\_\_\_\_ ) A line segment is drawn, connecting the points  $A(-3, -1)$  and  $C(5, 7)$ . Point  $B$  is on this line segment such that the ratio  $AB:BC$  is  $1:3$ . What are the coordinates of point  $B$ ? Express your answer as an ordered pair.

4. \_\_\_\_\_ Cecilia read consecutive pages of a 60-page comic book, and the sum of the page numbers she read was 300. What is the sum of all possible values for the page number of the final page that she read?

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## 2026 School Competition Target Round Problems 5 & 6

Name \_\_\_\_\_

School \_\_\_\_\_

**DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.**

Problem 5	Problem 6	Scorer's Initials

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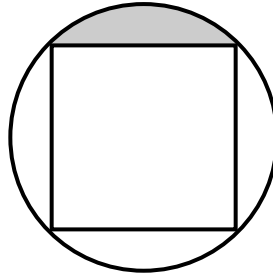
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5. \_\_\_\_\_ units<sup>2</sup>

A square is inscribed in a circle of radius 8 units. The square divides the interior of the circle into five regions, four of which lie outside the square. What is the area of the shaded region? Express your answer as a decimal to the nearest tenth.



6. \_\_\_\_\_

Ethan draws four cards from a standard 52-card deck without replacement. What is the probability that no two of them will be the same rank or the same suit? Express your answer as a common fraction.

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## 2026 School Competition Target Round Problems 7 & 8

Name \_\_\_\_\_

School \_\_\_\_\_

**DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.**

Problem 7	Problem 8	Scorer's Initials

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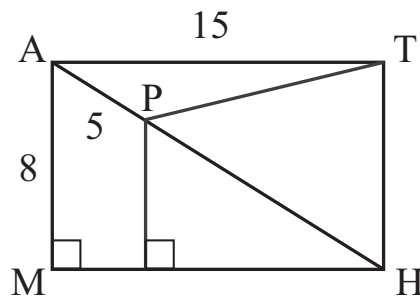
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7. \_\_\_\_\_  $\text{in}^2$  Jeanette is a perfect gift-wrapper and uses the minimum possible paper, with no overlap or waste. She is wrapping birthday presents for her three friends, who just so happen to be triplets. If each present is placed in a 6 inch by 9 inch by 10 inch box before being wrapped, how much wrapping paper, in square inches, will Jeanette need to wrap all three presents and have none left over?

8. \_\_\_\_\_  $\text{units}^2$  Rectangle MATH shown below has  $AM = 8$  units,  $AP = 5$  units and  $AT = 15$  units. What is the area of triangle PTH? Express your answer as a common fraction.



# MATHCOUNTS®

## 2026 School 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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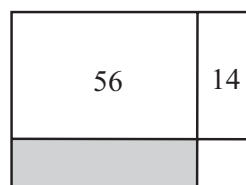
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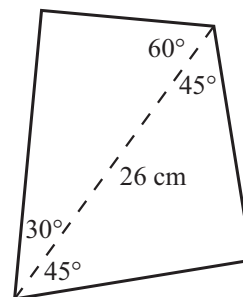
1.           matches           Andy won 3 out of every 5 tennis matches that he played against Jason. If they played 35 matches in total, how many of them did Jason win?
  
2.           numbers           James is thinking of a whole number between 10 and 30, inclusive. James tells Selena the remainder when his number is divided by 3, and also the remainder when his number is divided by 4, and Selena observes that these remainders are different. How many possible numbers could James be thinking of?
  
3.           seconds           Kris and Susie are running a 100-meter race. Both run at constant speeds. Susie's running speed is 1.25 meters per second faster than Kris's running speed, and she finishes the race 4 seconds faster than Kris. How many seconds does Susie take to finish the race?
  
4.                                  Evan takes four math tests. The median of his four test scores is 81 and the mean is 75. If the highest of his four test scores is 97, what is the lowest of his scores?
  
5.                                  What is the greatest positive integer  $n$  for which  $1 + 2 + 3 + 4 + \dots + n \leq 2026$ ?
  
6.                                  A rectangular dartboard is subdivided into four smaller rectangles, as shown in the diagram, with two regions having areas 56 square units and 14 square units. Assume that when a dart is thrown it will hit the dartboard, and each point on the dartboard is equally likely to be hit. If the probability of getting a dart in the shaded region is  $\frac{8}{45}$ , what is the probability of a dart hitting in the rectangle that has an area of 14 square units? Express your answer as a common fraction.





7. \_\_\_\_\_ years old      Aerith is twice as old as Bob. Eight years ago, Aerith's age in years was equal to the square of Bob's age in years at that time. If Bob is more than 8 years old now, how many years old is Aerith now?

8. \_\_\_\_\_  $\text{cm}^2$       What is the area of the quadrilateral shown, with diagonal 26 cm? Express your answer as a decimal to the nearest hundredth.



9. \_\_\_\_\_ cents      Matthew buys a bag of 50 pieces of candy for \$8. He eats 25 pieces and sells the remaining 25 pieces to Darren for \$5. How many more cents per piece does Darren pay, on average, than Matthew?

10. \_\_\_\_\_  $\text{in}^2$       A geometric baker makes pentagonal cookies, as shown below. Cookies are priced in proportion to their area, and two cookies have prices as indicated. What is the area of the right triangle shown?

