

MATHCOUNTS®

2026 CHAPTER COMPETITION Countdown Round Problems 1–80

**This booklet contains problems to be used in the
Countdown Round.**

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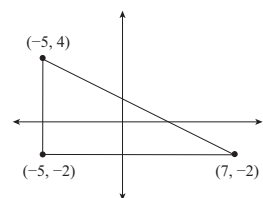
1. _____ The difference between two prime numbers is 27. What is the sum of the two prime numbers?
2. _____ From a pile of 72 candy bars, Adam drew 10, Beth drew 9, Eva drew 15, Marcus drew 12 and Tina drew 14. What proportion of the pile of candy bars was drawn by the person who drew the median? Express your answer as a common fraction.
3. _____ What is the value of $26^2 - 20^2$?
4. _____ in^2 Right triangle ABC has a perimeter of 36 inches, and it is similar to a right triangle with legs measuring 3 inches and 4 inches. What is the area of triangle ABC, in square inches?
5. _____ in^2 If the area of a floor mat is 7 ft^2 , what is its area, in square inches?
6. _____ The range of a data set is 73. If the greatest element of the set is 139, what is the least element?
7. _____ Cody turns 26 in a perfect square year. If he was born before 2000 and after 1950, in what year was he born?
8. _____ What is the base-10 equivalent of 144_8 ?
9. _____ What is the sum of the integers from 1 to 20, inclusive?
10. _____ percent Zoe is shopping for a sweater, and she finds one that is marked down 30% from its original price. A sign above the rack of clothes reads, "Take an additional 20% off," applied to the discounted price. What percent of the sweater's original price would Zoe pay after both discounts?
11. _____ minutes Brendan types 60 words per minute. Alisa types 20 more words per minute than Brendan. How many minutes longer will it take Brendan to type 480 words than Alisa?
12. _____ Given that 9000 kilometers per hour is equivalent to x meters per second, what is the value of x ?
13. _____ hours In a single week, how many hours pass between 3 p.m. on a Tuesday and 9 a.m. on a Friday?
14. _____ What is the value of $(1 - 2) \times (3 - 4) + (5 - 6) \times (7 - 8) + \dots + (97 - 98) \times (99 - 100)$?

15. _____

What real number x satisfies the equation $2^{12} = 8^x$?

16. _____ units²

What is the area of the triangle with vertices $(-5, 4)$, $(-5, -2)$ and $(7, -2)$?



17. _____

Kaleia and Allison hope to be in the same Biology class. Kaleia's mom teaches 2 of the 9 sections, and Kaleia cannot be placed in either one. She is equally likely to be assigned to any of the remaining sections. Allison is equally likely to be placed in any of the 9 sections. What is the probability they end up in the same section? Express your answer as a common fraction.

18. _____

If x and y are positive integers such that $(x + y)^2 = 36$, what is the greatest possible value of xy ?

19. _____

A sequence of positive integers begins with the numbers 1 and 4, and each subsequent number is the sum of all of the numbers before it. What is the greatest number in the sequence that is less than 100?

20. _____ inches

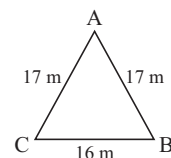
Charlie is exactly 6 feet tall, standing 5 inches taller than Amanda. If Amanda is 10 inches shorter than Max, how tall is Max, in inches?

21. _____ dollars

A \$1500 prize is to be shared in the ratio 3:2:1 among three awardees. How many dollars are in the largest share?

22. _____ m²

Triangle ABC has $AB = AC = 17$ meters and $BC = 16$ meters. What is its area, in square meters?



23. _____

What is the sum of the greatest common factor and least common multiple of the set $\{2, 4, 6, 8\}$?

24. _____ hours

At a confectionary school, all the bakers have the same production rate. If 10 bakers can make a total of 4 cakes in 3 hours, how many hours will it take 5 bakers to make 8 cakes?

25. _____ sides

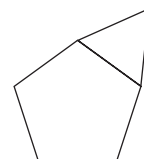
The sum of the interior angle measures of a convex polygon is 1980 degrees. How many sides does the polygon have?

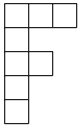
26. _____

What is the least positive integer n such that $7^{\frac{1}{4}}$ raised to the power of n is a rational number?

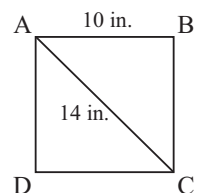
27. _____ cm

A regular pentagon and equilateral triangle share a side. If the pentagon has a perimeter of 65 cm, what is the perimeter of the triangle, in centimeters?



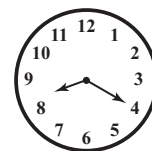
28. _____ tests Mathias is taking a geometry class. After all the tests except the final test are over, his average is 90%. The final test can increase this average to at most 92%. Assuming all the tests are equally weighted, and the highest possible score on a test is 100%, what is the total number of tests given in the class, including the final?
29. _____ What is the value of $\frac{1.2 \times 10^{17}}{4.8 \times 10^{14}}$?
30. _____ percent Of the 70% of students in the Spanish class who earned a passing grade, 30% earned an A. What percent of the students in the entire class earned an A?
31. _____ The figure shown is made of 8 unit squares. If the figure has area m units² and perimeter n units, what is the value of $m + n$?
- 
32. _____ What is the absolute difference between the mean and the median of the numbers 2, 20, 26, 60?
33. _____ If two kids are selected at random from a playground, what is the probability that both were born on a Tuesday? Express your answer as a common fraction.
34. _____ If $5x + 4y = 9$ and $3x + 2y = 7$, what is the value of y ?
35. _____ fl oz The Math Mart is having a sale on shampoo. The 20 fluid ounce Math Mart brand shampoo costs \$2.99, and the 30 fluid ounce Solvers' Select brand shampoo costs \$6.99. If Anika has \$20 for buying shampoo, what is the maximum amount of shampoo, in fluid ounces, that she can buy?
36. _____ points Chad takes a 35-point test five days in a row. His first four scores are 21.7, 23.9, 18.4 and 19.6. On the fifth day, his score is 10 points higher than the mean of the first four scores. By how many points does Chad's fifth test score bring up the arithmetic mean?
37. _____ Phillip randomly chooses two distinct vertices of a regular pentagon. What is the probability that they are connected by a side? Express your answer as a common fraction.
38. _____ What is the ratio of the area of a circle with radius 20 to the area of a circle with diameter 26? Express your answer as a common fraction.
39. _____ What is the sum of the first 10 odd positive integers?
40. _____ What is 20% of 2026? Express your answer as a decimal to the nearest tenth.
41. _____ What is the sum of the range and the median of the set $\{1, 4, 9, 16, 25, 36, 49\}$?

42. _____ What is the value of 248×75 ?
43. _____ feet Every day, Raylan walks 350 feet from his house to school, then 200 feet from school to Boyd's house to hang out, and he finally returns home for dinner. What is the absolute difference between the greatest and least possible lengths he walks every day, in feet?
44. _____ What number is $\frac{3}{4}$ of the way from -17 to 39 ?
45. _____ nickels Penny's piggy bank has pennies, nickels and dimes. It has twice as many dimes as nickels and five times as many nickels as pennies. The total value inside her piggy bank is \$8.82. How many nickels does Penny have?
46. _____ in² Rectangle ABCD has $AB = 10$ inches and $AC = 14$ inches. What is its area, in square inches? Express your answer in simplest radical form.
47. _____ Billy wants to schedule the same number of dog walks each day of the week he works. This is possible if he works Monday through Thursday, or Monday through Saturday, but when he tries to schedule the walks for Monday through Friday he has 4 walks left to schedule. What is the least possible number of dog walks Billy has to do every week?
48. _____ A list of five integers has range 10 and median 100. What is its greatest possible mean?
49. _____ Mac and Millie are collecting jellybeans. On the first Monday, Mac collects 15 jellybeans, while Millie collects 47. Each subsequent day, Mac collects 5 more jellybeans than the previous day, and Millie collects 2 more jellybeans than the previous day. On what day of the week does Mac first collect more jellybeans than Millie, for that day?
- | | M | T | W | T | F | S | S |
|--------|----|----|----|---|---|---|---|
| Mac | 15 | 20 | 25 | | | | |
| Millie | 47 | 49 | 51 | | | | |
50. _____ units What is the side length, in units, of a square with area numerically equal to its perimeter?
51. _____ (,) What are the coordinates of the y -intercept of the perpendicular bisector of the line segment connecting $(1, 2)$ and $(3, 4)$? Express your answer as an ordered pair.
52. _____ bakers Alyx needs to bake 35 dozen cookies by tomorrow. Alyx can bake only 6 dozen cookies by herself in that time, but she has relatives willing to help. If each relative can bake 2 dozen cookies by tomorrow, how many bakers, *including Alyx*, are needed?



Item	Price
Caramel Cold Brew	\$5.75
Vanilla Latte	\$5.50
Black Coffee	\$2.25

53. _____ dollars The prices at Mrs. Matsuda's local coffee shop are shown in the table. If she purchases 1 Caramel Cold Brew, 1 Vanilla Latte and 3 black coffees, how many dollars does she spend?
54. _____ crepes At the Hillview Middle School Math Team Crepe Sale, the team captain determines that 8 eggs would make 34 crepes. Rusha brought in 3 cartons of 12 eggs. How many crepes will the team be able to make?
55. _____ What is the sum of the two coefficients in the polynomial $(2x + 3)(3x + 5)$ after it is expanded and simplified?
56. _____ degrees The degree measures of a pair of supplementary angles are in a ratio of 1:4. What is the degree measure of the larger angle?
57. _____ coins Della has some number of coins, each of which is either a penny, nickel, dime or quarter. The total value of her coins is exactly \$1.18. What is the least total number of coins she could possibly have?
58. _____ What is the positive square root of $2^2 \times 3^2 \times 5^4$?
59. _____ pieces At a fruit stand, 20 oranges cost the same as 26 bananas. To buy a positive whole number of both oranges and bananas, and to pay the same total amount for each type of fruit, at least how many total pieces of fruit would one need to buy?
60. _____ cm A square has area 64 cm^2 . What is its perimeter, in centimeters?
61. _____ weeks Alice and Bob are saving up for a new Gamebox 5000 to share. If Alice saves her allowance alone, it will take her five weeks to afford it. If Bob saves up alone, it will take him six weeks. If they are paid at the end of every week, how many whole weeks will it take for the two of them to save up enough together?
62. _____ What is the value of $\frac{7!}{5!}$?
63. _____ dollars Liz bought a handbag for \$60. Her sister Nicole bought a different handbag for \$45 more than Liz. What is the combined cost of the handbags Liz and Nicole bought, in dollars?
64. _____ What is the units digit of $(20 + 26)^{2026}$?
65. _____ degrees At 8:20 p.m., what is the number of degrees in the obtuse angle formed by the hands of a 12-hour clock?
66. _____ If $x - y = 15$ and $3x - y = 71$, what is the value of $2x - y$?



67. _____ in³ A cylindrical vase is filled to a depth of 3 inches. More water is added, increasing the depth of water to 4.5 inches. If the original volume of water is 42 in³, what is the volume, in cubic inches, after more water is added?
68. _____ What is the slope of the line $-3x + 2y + 6 = 0$? Express your answer as a common fraction.
69. _____ What is the value of $\frac{1}{3} + \frac{1}{7} - \frac{1}{21}$? Express your answer as a common fraction.
70. _____ When a number is doubled, it is equal to 9 less than five times the original number. What is the original number?
71. _____ cm A parallelogram with base 12 cm and corresponding height 5 cm has a second base 10 cm. What is the length of the second height, in centimeters?
72. _____ units² The rectangle shown is split into four smaller rectangles. Areas of three of the smaller rectangles are shown. How many square units are in the area of the shaded rectangular region?
- | | |
|----|-----|
| 70 | |
| 48 | 120 |
73. _____ What is the value of $\frac{10 \times 15}{\text{LCM}(10, 15)}$?
74. _____ Ms. Rippe's science class has 14 boys and 15 girls. If 3 girls are added to the class, what fraction of the class is now boys? Express your answer as a common fraction.
75. _____ degrees What is the average measure, in degrees, of an interior angle in a triangle?
76. _____ If $4a = 7$, what is the value of $8a + 5$?
77. \$ _____ Maya empties her piggy bank and finds 4 pennies, 4 nickels, 4 dimes and 4 quarters. What is the total value of the coins she found?
78. _____ inches A square has integer side lengths and an area less than 50 in². What is the square's largest possible perimeter, in inches?
79. _____ If $\sqrt{29x} = 29$, what is the value of x ?
80. _____ If $23x = 23$ and $23y = 0$, what is the value of $x + y$?

