Math BINGO

Do you have the lucky card?

Your club members will love this MATHCOUNTS reboot of a classic game. With the perfect mix of luck and skill, this is a game that can be enjoyed by students of all levels!

MATERIALS NEEDED

- BINGO cards - 1 per club member per game*
- BINGO chips (small pieces of paper, coins, or similar markers)
- LCD projector, laptop and a copy of the BINGO PDF presentation OR overhead projector and overhead transparencies of the BINGO PDF presentation slides (PDF presentation available at www.mathcounts.org/ClubLeaders)
- Stopwatch (optional)
- Prizes for the winning students (optional)

* Included in this *Club Activity Book* and available for download at www.mathcounts.org/ClubLeaders

HOW TO PLAY

We have created 60 problems — with answers of 1–60, inclusive — for you to use. Make as many copies of the blank BINGO card template as you need. Students then can fill in the 24 empty squares with any integers they desire from 1-60, inclusive, using no integer more than once.

> Fred has 2 yellow, 2 red and 2 green tokens. One red token is equal to 9 green tokens. One yellow token is equal to 3 green tokens. Fred converts all of his tokens to green tokens. How many green tokens does he have?

The BINGO PDF presentation for this activity is available for download at www.mathcounts.org/ClubLeaders. Ideally, you can project the questions onto a screen for students to see. However, if you don't have that ability, you can print out the pages by using the black-and-white option and then make overhead transparencies of the pages.

Students can either (1) work on the problems alone, each student having a separate BINGO card, or (2) work in small groups and share a BINGO card with their group. Students must work EVERY problem to see if the answer to each problem is on their BINGO card. If an answer is on the card, students then cover the corresponding square with a marker. (A marker can be any small object. If a student will use his BINGO card only once, then he can simply cross off the numbers rather than covering them up.)

You can decide if you want to put a time limit on every question or if you want to vary the time depending on the question. A time limit makes the exercise a little more challenging. Given that the numbers are in random order on the card and the B-I-N-G-O letters cannot be used to find a number's column, it will take students more time to scan the entire card for an answer than it would to find B-4, for example. We recommend allowing at least 45 seconds per problem.

B	I	N	G	O
23	5	12	9	8
52	43	2	13	20
47	33	FREE	4	11
60	7	10	28	21
14	22	51	50	1

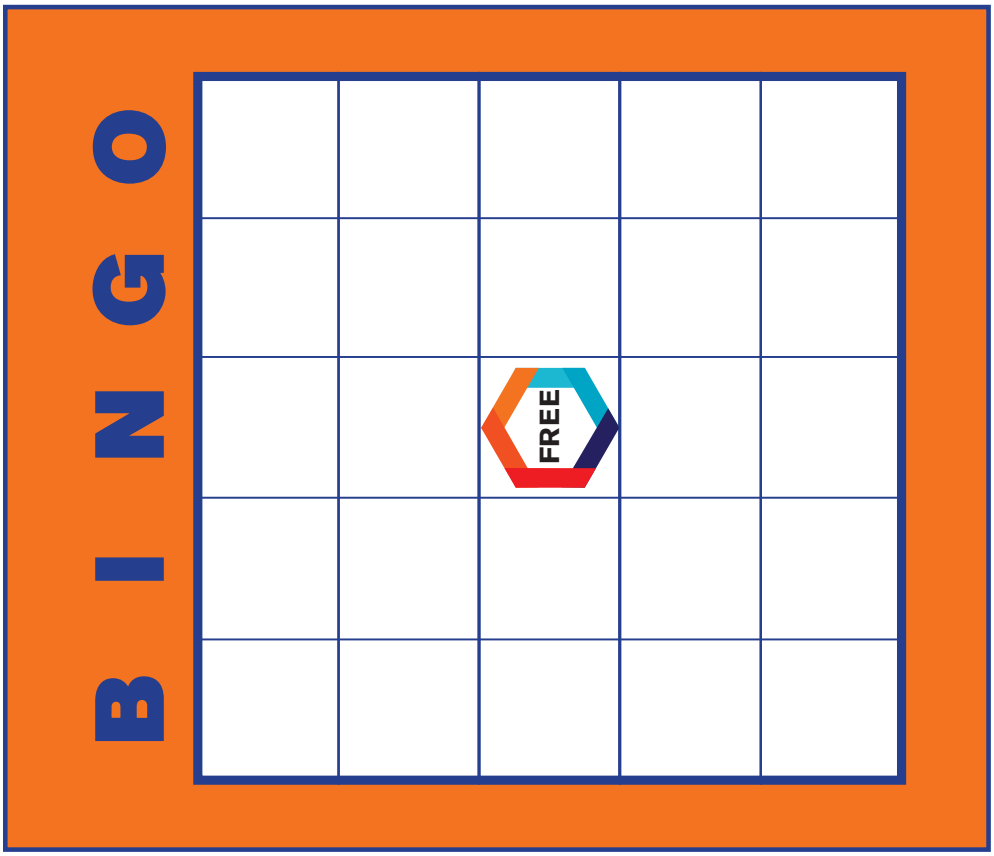
The middle square is a FREE square, so it counts for everyone. The first student to cover five squares in a row (vertically, horizontally or diagonally — with or without the FREE square) wins the game. Once a student believes he has won, ask him to call out the five numbers in the squares that are in a row and be sure that those were the answers to problems you used. (As you give the problems—whether in the same order as in the PowerPoint file or in a random order—be sure to record for yourself which problems you used and which answers the students could have used. See the provided Number Tracker tool.)

Possible Next Steps

There are many next steps you can take with this activity.

- We certainly recommend going back over the problems after your winner or winners have been determined. Ask students if they saw shortcuts for solving any of the problems, and have them share their solutions.
- It is also possible to extend the game to have multiple winners. Rather than stopping when one student has covered five squares in a row, continue the game and have the next winner be the person who has covered two sets of five squares in a row. You can take it further to see who covers an entire card first.
- If you play only until the first person covers five squares in a row, you can easily start a second game that probably won't take as long. Give students a list of the answers that were not used, have students create their own BINGO cards from those remaining numbers and then start the new game using only the remaining questions. As long as there are 24 questions left, students can fill in every square with a different number and play the game. You can use copies of the blank template we provide, or students can easily create their own 5-by-5 grid with a free square in the middle.
- You can use this game for any set of questions you create. Simply give a list of the answers to the students in random order or in order from least to greatest, tell them to create a BINGO card using any 24 numbers from that list and then start calling out the questions. It is a great game to use with any review activity. You need only 24 unique answers since they can be placed on a card in many different ways.

Make as many copies of the BINGO card below as you need!
You should be able to fit two per page.



B I N G O

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Countdown Round - Order/Answers for PowerPoint Slides

slide 1	58 (percent)
slide 2	41 (square centimeters)
slide 3	2 (coins)
slide 4	11
slide 5	1 (angle)
slide 6	14
slide 7	8 (dimes)
slide 8	26 (green tokens)
slide 9	43
slide 10	17
slide 11	27 (square centimeters)
slide 12	31 (integers)
slide 13	54
slide 14	40 (cm)
slide 15	4 (boxes)
slide 16	56
slide 17	20 (cents)
slide18	55 (degrees)
slide 19	32 (units)
slide 20	36 (square feet)
slide 21	13
slide 22	52 (pens)
slide 23	5 (integers)
slide 24	44
slide 25	9
slide 26	21
slide 27	18
slide 28	46 (feet)
slide 29	23
slide 30	30
slide 31	47
slide 32	12 (cookies)
slide 33	34
slide 34	3
slide 35	37 (minutes)
slide 36	10 (minutes)
slide 37	49
slide 38	35
slide 39	51 (shelves)
slide 40	48 (female students)
slide 41	50 (percent)
slide 42	19 (pennies)
slide 43	25
slide 44	53 (pencils)
slide 45	57 (miles)
slide 46	15
slide 47	59 (percent)
slide 48	42
slide 49	45 (degrees)
slide 50	39
slide 51	29 (degrees)
slide 52	16
slide 53	6 (red candies)
slide 54	22 (dollars per square foot)
slide 55	24
slide 56	60 (degrees)
slide 57	33 (centimeters)
slide 58	7
slide 59	38 (calories)
slide 60	28 (years)

NUMBER TRACKER

Cross off answers as they are used.

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60

BINGO QUESTIONS (if you would like to select questions at random; ordered by answer):

Answer	***Question***
1 angle	How many obtuse interior angles are in an obtuse triangle?
2 coins	Five U.S. coins are worth a total of 35 cents. How many of the coins are dimes?
3	Let $y = 2 + 3x$. How much greater is y when $x = 3$ than when $x = 2$?
4 boxes	How many more boxes are needed if 70 ornaments are packaged in boxes that each hold 5 ornaments rather than boxes that each hold 7 ornaments?
5 integers	How many integers between 20 and 90 are perfect squares?
6 red candies	A candy company puts 21 candies in each bag. There are only red and blue candies in each bag. For every 2 red candies in a bag there are 5 blue candies. How many red candies are in each bag?
7	What is the greatest prime factor of 10!?
8 dimes	The value of eight nickels and six dimes is the same as four nickels and how many dimes?
9	The three-digit integer 63_ is a multiple of 3. What is the greatest possible digit that can be placed in the blank?
10 minutes	Mary jogs 12 miles in 2 hours. On average, how many minutes does it take her to jog one mile?
11	How much more than 4^2 is 3^3?
12 cookies	Kaya ate 60 cookies over a 5-minute period. On average, how many cookies did she eat each minute?
13	What is the greatest integer less than 53/4?
14	What is the sum of the number of faces and edges of a triangular prism?
15	In the formula $d = rt$, what is the value of r if $d = 60$ and $t = 4$?
16	What is the value of $5^2 - 3^2$?
17	The average of five numbers is 16. Four of the numbers are 16, 16, 16 and 15. What is the value of the fifth number?
18	The ratio of x to 27 is equal to the ratio of 2 to 3. What is the value of x?
19 pennies	In box A, there are four more pennies than in box B. The total number of pennies in boxes A and B is 34. What is the number of pennies in box A?
20 cents	A particular store sells a pack of 7 pencils for $1.40. What is the average cost per pencil, in cents?
21	What is the sum: $-9 + -8 + -7 + \ldots + 8 + 9 + 10 + 11$?
$22 per sq. foot	The Carters had a 10-foot by 10-foot patio built at a cost of $2200. How many dollars per square foot did the patio cost to build?
23	Evaluate $x^2 - y^2$ when $x = 12$ and $y = 11$.
24	Fifty percent of what number is 12?
25	What is the sum of the first five positive odd integers?
26 green tokens	Fred has 2 yellow, 2 red and 2 green tokens. One red token is equal to 9 green tokens. One yellow token is equal to 3 green tokens. Fred converts all of his tokens to green tokens. How many green tokens does he have?
27 cm^2	In the figure shown, polygons ABCD, CDEF and DEGH are squares. The length of segment FG is 6 cm. How many square centimeters are in the area of hexagon ABFGHD?**
28 years	The ages, in years, of the eight math teachers in the school are: 28, 28, 28, 28, 32, 32, 41, 76. What is the mode of the ages?
29 degrees	Triangle ABC is isosceles with angle B congruent to angle C. The measure of angle C is 75.5 degrees. What is the number of degrees in the measure of angle A?
30	What is the least common multiple of 3, 5 and 6?
31 integers	How many positive integers are less than 10π?
32 units	Each side of pentagon ABCDE has length less than or equal to 7 units, AB = 5 units and BC = 6 units. How many units are in the greatest possible perimeter of ABCDE?

33 cm	From a one-meter piece of yarn, Chris cuts a 31.5 cm piece and a 35.5 cm piece. In centimeters, how much yarn is left?
34	If $\clubsuit + 5 = 22$, what is the value of $\clubsuit + \clubsuit$?
35	Two positive integers are in the ratio 3:4. The smallest integer is 15. What is the sum of these two integers?
36 ft^2	Two figures each have a perimeter of 40 feet. One is a square and one is a rectangle with dimensions of 4 feet by 16 feet. What is the positive difference in the number of square feet of their areas?
37 minutes	A printer prints 17 pages per minute. How many minutes will it take to print 625 pages? Express your answer to the nearest whole number.
38 calories	A stair-step exercise machine indicates that Leon burns 114 calories in 9 minutes. At the same rate, how many calories would Leon burn in a 3-minute workout?
39	What is 150% of 26?
40 cm	Two sides of an isosceles triangle are 15 cm and 10 cm. What is the greatest possible perimeter of this triangle, in centimeters?
41 cm^2	What is the area, in square centimeters, of square** ABCD in the figure shown if DX = 4 cm and AX = 5 cm?
42	Solve for x: $100 - x = 16 + x$.
43	What is the value of $5^2 + (3\sqrt{2})^2$?
44	What is the greatest two-digit multiple of 4 that is less than 47?
45 degrees	What is the number of degrees in the measure of angle ABD in square ABCD?**
46 feet	A hot air balloon is 10 feet off the ground now and is rising at a constant rate of 2 feet per second. What is the height of the balloon, in feet, after 18 more seconds?
47	What is the average of 45, 46, 47 and 50?
48 female students	Of the 80 students at camp, 40% of them are male. How many female students are at camp?
49	What is the positive difference between 25^2 and 24^2?
50 percent	The Battling Hummingbirds have won 40% of their first 60 games. If they win their next 12 games in a row, what percent of all of their games will they have won?
51 shelves	Marie owns 3 department stores. Each store has 17 shelves for towels. What is the total number of shelves for towels?
52 pens	Pens come in a package holding 4 pens. Rina's teacher bought 13 packages of pens. How many pens did she buy?
53 pencils	Ralph bought 5 dozen pencils for himself but gave 7 pencils to Stacey. How many pencils did Ralph have left?
54	What is the greatest possible integer less than 60 that is divisible by 3 and divisible by 6?
55 degrees	On a protractor, ray BA goes through the 85-degree mark and ray BC goes through the 30-degree mark. What is the measure, in degrees, of angle ABC?**
56	What is the sum of the first seven positive even integers?
57 miles	Katrina can bicycle 38 miles in four hours. At the same speed, how many miles does she bicycle in six hours?
58 percent	Kyle missed 21 of the first 50 free throws he attempted. What percent of those first 50 free throws did he make?
59 percent	The total value of 90 pennies, 20 dimes and 12 quarters is what percent of the value of a ten-dollar bill?
60 degrees	The ratio of the measures of two complementary angles is 2:1. What is the measure, in degrees, of the larger angle?

***Figure from problem must be copied from the PDF presentation, available at www.mathcounts.org/ClubLeaders.*

Math BINGO

All answers are from 1-60 (inclusive).

Solve each problem and if you find the number on your BINGO card, place a marker on the square or cross it out.

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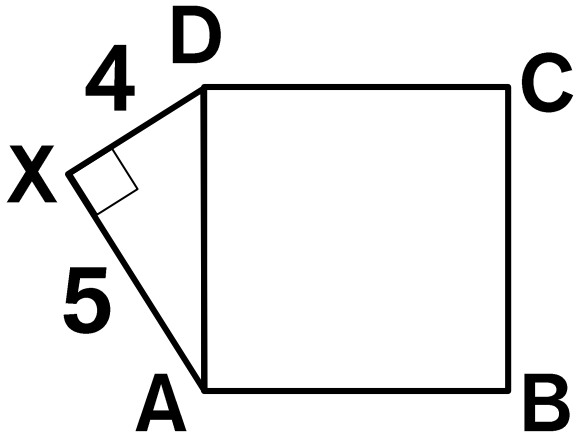
1. Kyle missed 21 of the first 50 free throws he attempted. What percent of those first 50 free throws did he make?

2. What is the area, in square centimeters, of square ABCD in the figure shown if DX = 4 cm and AX = 5 cm?



3. Five U.S. coins are worth a total of 35 cents. How many of the coins are dimes?

4. How much more than 4^2 is 3^3?

5. How many obtuse interior angles are in an obtuse triangle?

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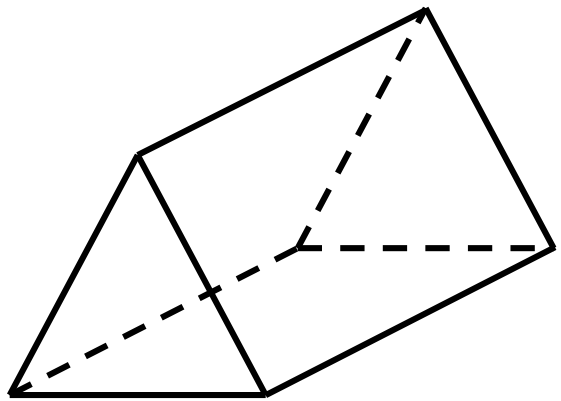

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10. The average of five numbers is 16. Four of the numbers are 16, 16, 16 and 15. What is the value of the fifth number?

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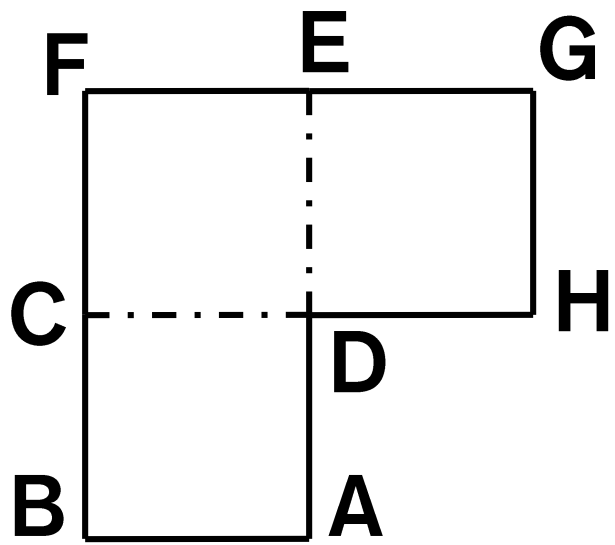

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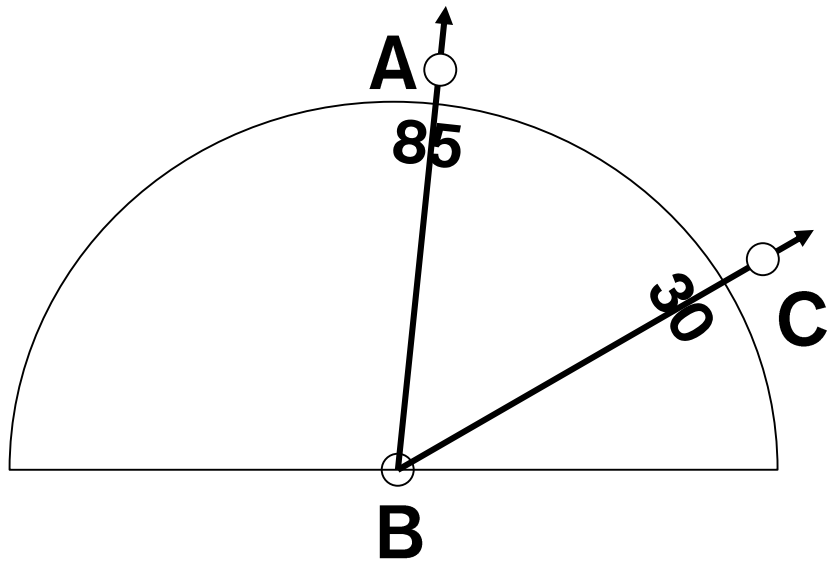

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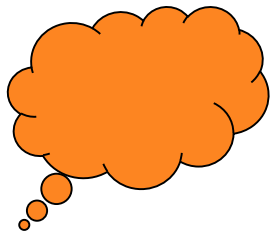
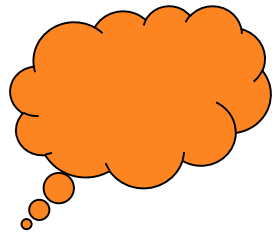
33. If  + 5 = 22, what is the value of  +  ?

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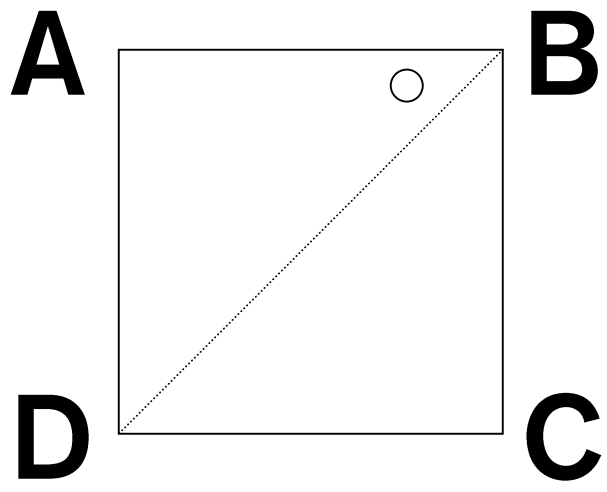

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