

Orange County Math Circle Thanksgiving Tournament

Grade 5 - 6 Sprint Round

Name:

School:

Grade:

- $(-1)^1 + (-1)^2 + (-1)^3 + (-1)^4 + \dots + (-1)^{2009} =$
(A) -2009 (B) -1 (C) 0 (D) 1 (E) 2009
- $(2 + 4 + 6 + 8 + \dots + 2010) - (1 + 3 + 5 + 7 + \dots + 2009) =$
(A) 0 (B) 1 (C) 1005 (D) 2009 (E) 2010
- $5 \times 5 \times 5 \times 5 =$
(A) 20 (B) 50 (C) 125 (D) 500 (E) 625
- A turkey weighs 9 pounds plus half its weight. How much does the turkey weigh?
(A) 4.5 pounds (B) 9 pounds (C) 13.5 pounds (D) 18 pounds (E) 22.5 pounds
- What is the greatest common factor of 24 and 46?
(A) 2 (B) 4 (C) 6 (D) 8 (E) 23
- What is the smallest three-digit prime number?
(A) 101 (B) 102 (C) 103 (D) 104 (E) 105
- Manny, Fanny, and Danny are eating sugar cubes before their math relay. Manny eats 4 times as many cubes as Danny, Fanny eats 6 less cubes than Manny, and Danny eats $\frac{1}{3}$ as many cubes as Fanny. How many sugar cubes did they eat all together?
(A) 12 (B) 24 (C) 36 (D) 48 (E) 60
- Alex stands in a line to purchase movie ticket. There are 6 people in front of him and 7 people behind him. How many people are in the line?
(A) 12 (B) 13 (C) 14 (D) 15 (E) 16
- How many whole numbers less than 100 can be divided by 5 or 7?
(A) 31 (B) 32 (C) 33 (D) 34 (E) 35
- 2010^2 exceeds by 2009^2 by:
(A) 1 (B) 2009 (C) 2010 (D) 4018 (E) 4019

Orange County Math Circle Thanksgiving Tournament

Grade 5 - 6 Sprint Round

Name:

School:

Grade:

11. There are x marbles in a pile. Bob takes $\frac{1}{5}$ of them for himself. Jen takes $\frac{3}{4}$ of the remaining marbles. Then Tom takes the remaining four marbles. How many marbles were there in the beginning?
(A) 12 (B) 15 (C) 18 (D) 20 (E) 24
12. $7 \times 22 \times 5 \times 8 = 16 \times 77 \times N$. What is the value of N ?
(A) 8 (B) 7 (C) 6 (D) 5 (E) 4
13. How many two-digit whole numbers are multiples of 13?
(A) 5 (B) 6 (C) 7 (D) 8 (E) 9
14. How many factors does $2^4 \times 9^2$ have?
(A) 2 (B) 15 (C) 18 (D) 20 (E) 25
15. 45% of 200 is equal to 30% of N . What is the value of N ?
(A) 200 (B) 300 (C) 400 (D) 500 (E) 600
16. Al and Bo are having a race. Bo starts 10 seconds before Al. 40 seconds after Bo started running, Al caught up to Bo after running 120 meters. What is Bo's speed?
(A) 1 m/s (B) 2 m/s (C) 3 m/s (D) 4 m/s (E) 5 m/s
17. A street is 200 meters long. Palm trees are planted on both sides of the street from the beginning to the end of the street at 5 meters apart. How many palm trees are planted?
(A) 40 (B) 41 (C) 80 (D) 81 (E) 82
18. There are six people at a party. They shake hands with each other at the beginning of the party. How many handshakes took place?
(A) 12 (B) 15 (C) 21 (D) 30 (E) 36
19. If 50 bloops = 60 bleeps, and 100 bleeps = 20 blips, then how many blips are 250 bloops?
(A) 15 (B) 60 (C) 100 (D) 150 (E) 300
20. Zachary thinks of two numbers. The first number is $\frac{3}{8}$ of the second number. If the difference between the two numbers is 45, find the value of the second number.
(A) 72 (B) 84 (C) 96 (D) 108 (E) 120

Orange County Math Circle Thanksgiving Tournament

Grade 5 - 6 Sprint Round

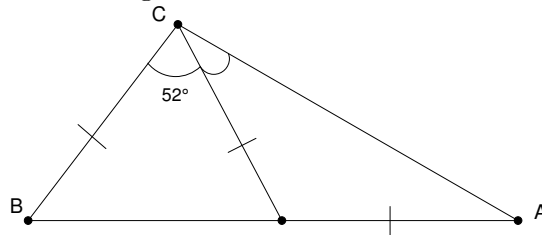
Name: _____

School: _____

Grade: _____

21. If Jack gave Jill 2 pails of water, Jill would have twice as many pails as Jack had. What is the least amount of pails they could have altogether?
 (A) 3 (B) 4 (C) 6 (D) 8 (E) 9
22. A train picks up a certain number of passengers. At the first stop, $\frac{1}{4}$ of the passengers got off. At the second stop, $\frac{1}{3}$ of the remaining passengers got off. At the third stop, $\frac{1}{2}$ off and at the fourth stop, all the remaining passengers got off. What is the least number of passengers that could have been on the train?
 (A) 1 (B) 4 (C) 8 (D) 12 (E) 24
23. If two pens and four pencils cost 18 cents, and three pens and one pencil cost 17 cents, How many cents do 1 pen and 1 pencil cost?
 (A) 9 (B) 8 (C) 7 (D) 6 (E) 5
24. A farmer had twice as many chickens as turkeys. After he sold 216 chickens, he had half as many chickens as turkeys. How many turkeys did he have left?
 (A) 72 (B) 108 (C) 144 (D) 216 (E) 532
25. If the surface area of a cube is $24x^4$. What is the volume of the cube?
 (A) $6x^5$ (B) $6x^6$ (C) $8x^5$ (D) $8x^6$ (E) Not enough information.

26. Find the value of $\angle BAC$ in the figure below.



- (A) 64° (B) 48° (C) 32° (D) 24° (E) 16°
27. Jody has a prime number of math problems for homework. If she has less than 50 problems and each problem takes her two minutes to solve, how much time, at most, will it take her to finish all of her problems?
 (A) 50 min. (B) 1 h. (C) 1 h. 34 min. (D) 1 h. 40 min. (E) 1 h. 50 min.

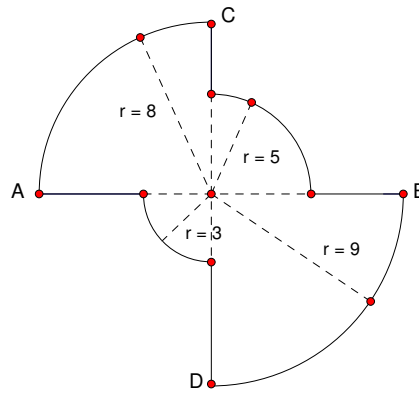
Orange County Math Circle Thanksgiving Tournament
Grade 5 - 6 Sprint Round

Name: _____

School: _____

Grade: _____

28. At 8:30 AM, 100 students came to participate in the Thanksgiving Tournament. By 9:30 AM, the number of students increased by 20%. At 10:30 AM, 10% more students joined. After another hour, 25% more students joined. How many students joined the tournament?
(A) 155 **(B)** 160 **(C)** 165 **(D)** 170 **(E)** 175
29. A round trip to Chicago is twice as long as a round trip to Seattle but half as long as a round trip to New York. If the three round trips take 6 weeks to complete, how long is a one-way trip to Chicago?
(A) 3 days **(B)** 4 days **(C)** 6 days **(D)** 9 days **(E)** 12 days
30. In the diagram, \overline{AB} is perpendicular to \overline{CD} . What is the area of the shape?



- (A)** 179π **(B)** $\frac{179}{2}\pi$ **(C)** $\frac{179}{4}\pi$ **(D)** $\frac{50}{4}\pi$ **(E)** $\frac{25}{4}\pi$