

2011 Orange County Math Circle All-Girls Tournament
Grade 5 - 6 Individual Round

Name: _____

School: _____

Grade: _____

1. $2011 \times 12 =$
2. Find the sum of the coefficients of $7 \times (7x - 5y)$
3. If four people always eat three apples, how many apples will 36 people eat?
4. It is said that a picture is worth a thousand words. It is also claimed that words are a dime each. Assuming this is true, what is the dollar value of a picture?
5. 6400 people lined up for a concert. One hour later, $\frac{1}{8}$ of them left. If 300 people came back the hour after, how many people are now lined up for the concert?
6. 3 days ago was 5 days after last Tuesday. What day is it?
7. I caught 12 butterflies at school today, but let them go. If I caught $\frac{1}{24}$ of all the butterflies, how many butterflies were there in total?
8. Andrew, Bill, and Carry decided to share a pie. Andrew took $\frac{1}{6}$ of the pie. Bill took $\frac{1}{4}$ of the pie. Carry took $\frac{1}{3}$ of Andrew's piece. How much pie did the three of them take in total?
9. What is the fraction halfway between $\frac{1}{5}$ and $\frac{1}{3}$?
10. Kelsey has \$100 dollars in her wallet. She buys a \$25 sweater using a "20% off" coupon. She also buys two pairs of shoes for \$10 each. How much does she have left in her wallet?
11. Jack drinks a pint of water each day. How many gallons of water does he drink in 8 weeks?
12. 96,240 is not divisible by which one of the following?
13. Alina, Beatrice, and Catherine each ate a piece of pie. Alina ate 25% of it, Beatrice ate $\frac{1}{12}$ of it, and Catherine ate 0.45 of it. How much was left?

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14. What is the 7th term of the following series?

$$\frac{1}{3}, \frac{2}{4}, \frac{3}{5}, \dots$$

15. Solve for x :

$$0.10(24 - x) + 0.25x = 3.45$$

16. Harriet had 2011 pencils at the beginning of the year. Being a very enthusiastic and hard working student, she uses up 15 pencils per day. How many pencils does she have left after 3 weeks?

17. I have a number. I multiply it by 90. I double the product, then divide that by 4. I then subtract the quotient from the number I got from after I multiplied it by 90, and multiply that by 2. What is the resulting number?

18. I have a pile of jelly beans left over from Easter. If I eat 10% of them and give $\frac{3}{24}$ of the remaining to you, what fraction will I have left of my original pile?

19. The number of 5th and 6th graders here today is 9 less than the square of a number n . If there are fifty-five 5th and 6th graders in total, what is n ?

20. Find the sum of the first 9 terms of the following sequence:

$$2, -5, 8, -11, 14, \dots$$

21. What is the remainder when the sum of the factors of 36 is divided by 10?

22. A number that is less than twenty has a remainder of 4 when divided by 6, but a remainder of 1 when divided by 3. What is the number?

23. Whenever I bake cookies, I use $2\frac{1}{2}$ cups of all-purpose flour for every 3 dozen cookies. How many cups of flour do I use for 9 cookies?

24. In a 3×3 grid of dots as shown below, how many lines contain at least 2 dots?

$$\begin{array}{ccc} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array}$$

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25. A jar has 5 ladybugs with 2 dots, 6 lady bugs with 3 dots, 7 ladybugs with 4 dots and 8 ladybugs with 6 dots. What is the probability that I will pull out a ladybug with an even number of dots?

26. What is true about the following equation?

$$|x^2|$$

27. Theresa has 6 coins. She only has quarters and dimes, and she has a total of \$0.90, how many dimes does she have?

28. I chose 3 songs to play on my iPod. How many ways can I play the songs in different orders?

29. Jack is climbing the beanstalk. If he climbs 12 feet every minute, how many yards has he climbed in an hour?

30. Write the following in decreasing order: $\frac{5}{6}$, 85%, $\frac{7}{9}$, 0.78, $\frac{7}{8}$

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31. In a class of 56 students, 12 students play softball and 6 students play both softball and soccer. How many students at most play soccer?

32. I want to order a scoop of ice cream in either a cup or a cone. The toppings I can choose from are almonds, sprinkles, and gummy bears. If the flavors of ice cream I can choose from are Cookies & Cream, mint chocolate chip, and strawberry, how many different combinations of ice cream orders can I order?

33. As I walk home, I pass 8 streetlights. The distance between each streetlight is 24 feet. If I start walking from the 1st streetlight and stop walking at the 20th streetlight, how far is my walk home?

34. Aaron and Bob are brothers, both under the age of fifteen. Next year, Aaron will be double the age of Bob. How old is Bob this year?

35. How many times in a day do the minute and hour hands of a clock follow the same line, excluding 6:00 and 12:00?

36. A triangle's area is $\frac{5}{2}$ of its height. If its area is 20, what is the length of its base?

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37. How many multiples of 11 are there between 100 and 200?

38. Three times the largest of four consecutive odd integers is three less than four times the smallest of the four consecutive odd integers. Find the smallest of the four consecutive odd integers.

39. What is the maximum number of points of intersection between a cube and a sphere?

40. How many rectangles are in the following figure?


