

Name: _____ Team #: _____
School: _____

Individual

The individual test contains 30 questions to be done in 30 minutes. The first 20 questions are worth 2 points each and the last 10 are worth 3 points each. Any area of math may be covered on this test. All non-integers answers must be recorded as improper fractions and in terms of π where appropriate, unless the question specifically asks for a different form. Please record your answers in the boxes of the column labeled Answers. Do not write anything in the column labeled Score. Be sure to record name, team #, and school on the test form. When your proctor says to, remove this cover sheet and begin working.

BE SURE TO WRITE YOUR NAME, SCHOOL and TEAM NUMBER ON THE ANSWER SIDE OF THIS PAPER.

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Individual

1. What is the remainder when 9865 is divided by 3?

2. If Vlad can eat 2 apples in 45 seconds, how many apples can he eat in one day?

3. James has 96 calculators. Dr. Tosch takes half of them, and then Mr. Roths borrows a third of the remaining calculators. How many calculators does James have left?

4. If the dividend is 4511 and the divisor is 13, what is the quotient?

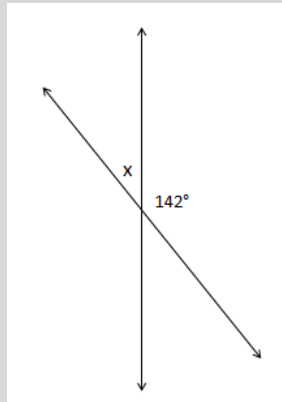
5. What is the length of the hypotenuse of a right triangle with side lengths 5 and 12?

6. What is $(2 \times 2)^2 \times 6 + 8 \div 2$?

7. What is the radius of a circle with a diameter of 10?

8. Solve for x if: $4x + 8 = 724$

9. Find the degree of angle x :



10. Find the volume of a cylinder with base radius 50 and height 13.

11. John has 5 brothers and each of his brothers has a wife and 4 kids. How many people are there?

12. Solve for x if $y=6$ and $2x \cdot 3y = 252$

13. What is the slope of the line including the points (2,12) and (5,6)?

14. What is 67^3 ?

15. A circle has the area of 169π . What is the diameter of the circle?

16. Sally bought a pie. If she ate $1/8$ of it one day, $1/7$ of what remained the next day, and $1/6$ of what remained the day after that, how much of the pie is left?

17. There are 5 black marbles, 7 green marbles and 3 orange marbles. What is the probability of taking an orange marble, keeping it, and then taking a green marble, in that order?

18. In the land of Boogabo their money is in boods, loods, and soods. 1 bood is worth 17 loods and 1 lood is worth 8 soods. If you have 11 boods, how many soods do you have?

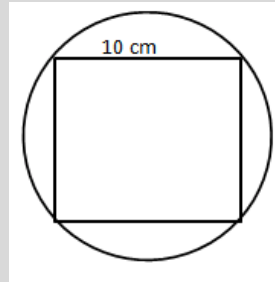
19. What is 7% of 7? Answer as a decimal.

20. When 9,999 is squared, what is the sum of its digits?

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The following questions are worth 3 points:

21. Find the area of the circle that circumscribes the square:



22. I roll a fair four-sided die, labeled 1 through 4, 4 times. What is the probability that I get the numbers 1, 2, 3 and 4 in some order?

23. I write down every number between 0 and 200. How many times will I write the number 1?

24. Write these numbers in order from smallest to largest:

$$2, \sqrt{5}, 2.5, \frac{12}{5}, \frac{13}{6}$$

25. Candace went to the store to buy some fruit. Apples cost \$1.55 each and oranges cost \$0.95 each. She paid \$42.90 for 30 pieces of fruit. How many apples did she buy?

26. An isosceles triangle has a height of 16, and a base, which has the unique side length, of 24. What is the sum of the other two side lengths?

27. Two friends have 54 apples. The friend with more apples ate 3 apples, and the friend with fewer apples ate 1 apple. The friend with more apples then had 4 times as many apples as the friend with fewer apples. How many apples did the friend with fewer apples have in the beginning?

28. Fill in the blank in this sequence:
1, 2, 5, 10, 17, 26, ____, 50

29. Steven collects trading cards. He already has 35 cards and he plans to start buying 3 cards every week. Later, he sells 19 and still has 58, how many weeks has it been since he started buying more cards?

30. What is the surface area of a rectangular prism with a length of 2 units, a width of 4 units, and a height of 4 units?