Name:_____

Math 8 Year End Review
Smartie Math

(cuz we're all a bunch of)

1. Name the mathematical term that best describes the shape of your box of smarties?

2. Measure and record the dimensions of your box in cm.

   Length: Width: Height:

3. Sketch the box in three dimensions. Label your sketch with the dimensions of your box.

4. Sketch the top, front, and side views of your box. Label the dimensions on your views.

5. Sketch the net for your box, ignoring the extra glue flaps. Label the net with the dimensions of your box.

6. Calculate the surface area of your box. Make sure in include units of measure.

7. Calculate the volume of your box. Make sure in include units of measure.

8. Using only the measurements from question 2, calculate the length of the diagonal on the front of the box. Verify your solution by measuring the diagonal.

9. Open your box of Smarties, count them and record the total.

DO NOT EAT YOUR SMARTIES YET, (NO NOT EVEN ONE), YOU WILL NEED THEM STILL.

10. Is the total number of Smarties in your box a perfect square? How do you know?

11. What two whole numbers does the square root of your total number of Smarties come between? Use these numbers to **estimate** the square root of the total number of Smarties?

12. What are the dimensions of the largest square you could form using your Smarties as tiles? Explain.

13. What are the dimensions of the largest square you could form using only your green, yellow, and blue Smarties as tiles? Explain.

14. There are 7 colors of Smarties. Assuming each box contains the same number of each color; determine how many of each color of Smarties you should have in your box. What percentage is this?

15. If you could purchase a box of Smarties with exactly 175 Smarties in it – how many would you expect to be
    a) Green

    b) Pink or Purple

    c) Brown

    d) Yellow, Red, or Pink

16. Sort your Smarties by color and record the number of each. Determine the fraction, percentage, and decimal of each color.

Color	Number	Fraction	Decimal	Percent
Green				
Yellow				
Red				
Blue				
Pink				
Brown				
Purple				
Total				

17. Write each ratio in lowest terms:
    a) Red to Blue

    b) Green to Pink to Yellow

    c) Brown to Not-Brown

    d) Purple to Total

18. Which of the ratios in #17 are part-to-part ratios? Which are part-to-whole ratios? Which ratios can be written as a percent?

19. What percentage of your pink Smarties are your purple Smarties?

20. What percentage of your purple Smarties are your pink Smarties?

21. Why are your answers for #19 and #20 different?

22. What percentage of your yellow Smarties are your blue Smarties? How does this number tell you whether or not you have more or less blue Smarties than yellow Smarties?

23. Find the student who has the most Smarties. If your box of Smarties represents 100%, what percentage of your box is their box?

24. If a box of Smarties costs $0.75, what is the unit cost of a Smartie?

25. If a box of Smarties costs $0.75, then calculate the total cost of a box including 5% GST.

26. A case of 24 boxes of Smarties costs $7.85. What is the unit cost for one box of Smarties?

27. Does your answer to #26 represent a ratio or a rate? Explain.

28. If red, pink and purple Smarties are positive, and the rest of the colors are negative, what integer does your total number of Smarties represent?

29. Red, pink and purple Smarties are positive and the rest of the Smarties are negative. Calculate each of the following:

a) The product of your red and blue Smarties.

b) The product of your pink and purple Smarties.

c) The product of your green and yellow Smarties.

d) The product of your purple and brown Smarties.

e) The quotient of your brown and purple Smarties.

f) The quotient of your blue and green Smarties.

30. Fill in the fractions below using your numbers of Smarties.

Fraction A: $\frac{blue}{red}$ Fraction B: $\frac{green}{yellow}$ Fraction C: $\frac{brown}{purple}$

31. Multiply: $A \cdot B$

32. Multiply: $B(C)$

33. Divide: $A \div C$

34. Divide: $B \div C$

35. What type of graph would be most appropriate for displaying the data you have collected? Explain?

36. Sketch a misleading graph that would lead people to believe that there are WAY more pink Smarties than any other color.

37. Measure the diameter of one Smartie in cm.

38. Measure the height of one Smartie at the thickest part in cm.

39. If you were to construct a cylindrical tube that all the Smarties would fit into, (stacked on each other one at a time) what would the dimensions of the tube be? Calculate the surface area of the tube? Calculate the volume of the tube?

Dimensions

Base:

Height:

Surface area:

Volume:

40. What is the probability of pulling a red Smartie from your box?

41. What is the probability of pulling a pink Smartie from your box?
42. Is there an equal likelihood of choosing each color at random from your box of Smarties? Explain.

43. Describe a probability experiment you could do with your box of Smarties that would involve dependent events.

44. Describe a probability experiment you could do with your box of Smarties that would involve independent events?

45. Calculate each probability, assuming you always put the first Smartie back in the box before pulling the second.
    a) P(blue, blue)

    b) P(green, yellow)

    c) P(red, red, red)

    d) P(brown, not brown)

    e) P(orange, any other color)

46. Let p represent the number of pink Smarties you have. Write three equations that could be used to determine the number of pink smarties in your box using each of the following.
    a) A negative number.

    b) Multiplication or Division and Addition or Subtraction.

    c) Distributive Property

47. Show how to algebraically solve each of your equations from #47.

48. Write an expression using the following rules.
    - The number of brown Smarties is your constant.
    - The number of purple Smarties is your coefficient.
    - The variable is the letter s.

49. Create a table of values to record the number of Smarties you would have left after each mouthful if one mouthful contains five Smarties. Write the ordered pairs that represent your table of values.

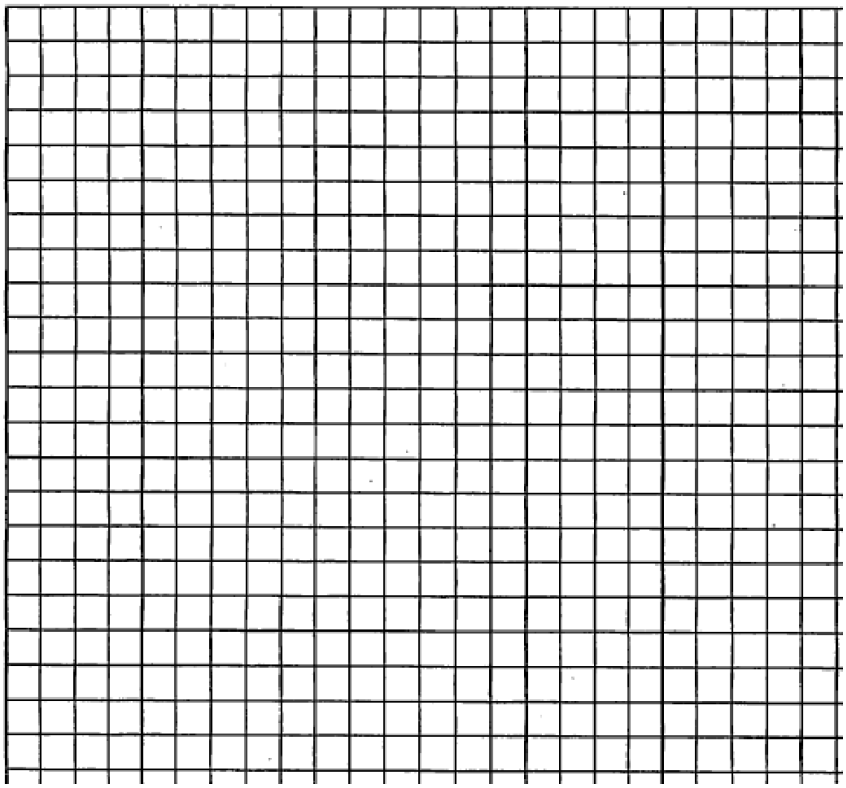
Mouthfuls	# of Smarties Left

Ordered Pairs

50. Create an equation to represent the number of Smarties remaining, r, after m mouthfuls.

51. Which numbers in your equation represent the constant and the coefficient? Describe how these numbers relate to the scenario.

52. Graph the data from your table of values.



53. How many mouthfuls will it take to eat your whole box of Smarties?

54. How many mouthfuls will it take before you have at most 50 Smarties remaining?