Summer Math Packet

For Students Entering
Grade 7 Math Class
Due Date: September 3, 2025

Student's Name: _____

This packet has been designed so that students will maintain and review their math skills during the summer. My mature mathematicians, please work on this packet throughout the summer. Don't wait until the day before it's due.

All students are to complete this packet. Please show all supporting work. Calculators may be used to check answers only. Thank you for your cooperation and support.

Parents, please sign below to verify that your child has completed the packet and all supporting work is shown.

Parent/Guardian signature _____

Math Mammoth End of the Year Test - Grade 6

The Basic Operations and Place Value

1. Solve.

a. 5^2

b. 10^4

c. 1^5

d. 2^4

e. 10^2

f. 3^3

2. **a.** The area of a square is 100 m^2. What is its perimeter?

b. The volume of a cube is 27 cubic inches. How long is its side?

3. Calculate in the correct order.

a. $120 + 3 \times 10$	**b.** $2^3 \div 2 + 5$
c. $40 - (2 + 4)^2$	**d.** $\frac{30 \times 50}{10 - 5} \times (15 + 5)$

4. Write as numbers.

a. 5 billion, 80 million, 7 thousand

b. 6 trillion, 392 million, five hundred

c. 9 trillion, 20 billion, 154 million

5. Write in normal form (as a number).

a. $2 \times 10^5 + 9 \times 10^4 + 7 \times 10^2$

b. $9 \times 10^8 + 5 \times 10^6 + 3 \times 10^5$

6. Evaluate the expressions when the value of the variable is given.

a. $3x + 8$ when $x = 6$	**b.** $\frac{40}{y} \times 12$ when $y = 8$

7. Solve the equations. You can just think logically!

a. $800 + x = 920$	**b.** $x - 250 = 250$
c. $6x = 420$	**d.** $\frac{x}{9} = 800$

Ratios and Proportions

8. Simplify the ratios.

a. 2:6

b. 9 balls to 12 triangles

c. 200 g to 2 kg

d. 15:21

9. Fill in the missing numbers to form equivalent rates.

a. $\frac{7 \text{ km}}{30 \text{ min}} = \frac{\quad}{15 \text{ min}} = \frac{\quad}{45 \text{ min}}$

b. $\frac{\$96}{8 \text{ hr}} = \frac{\quad}{2 \text{ hr}} = \frac{\quad}{10 \text{ hr}}$

10. Eileen mixes juice concentrate and water in the ratio of 2:5, to get diluted juice. She uses 80 ml of juice concentrate.

How much water will she need?

How much diluted juice will she get?

11. Solve the following proportions. Give your answer as a mixed number.

a. $\frac{x}{5} = \frac{7}{3}$	**b.** $\frac{11}{214} = \frac{2}{M}$

12. Solve. Show your work.

Harry can swim 20 laps in a pool in 18 minutes (swimming at a constant speed). How many laps could he swim in 45 minutes? (Swimming with the same speed.)

13. Write a proportion. *You do not have to solve it. Just write the proportion*

To purchase 600 bales of hay costs $3,300.
How may bales would you get with $2,500?

$$\frac{\qquad}{\qquad} = \frac{\qquad}{\qquad}$$

14. A car can go 80 km on 7 liters of gasoline (traveling with constant speed).

a. How many liters of gasoline would the car need for a trip of 54 km?

b. How far can the car travel on 18 liters of gasoline?

15. A rectangle's length and width are in the ratio of 2:5, and its perimeter is 140 cm.
What are the rectangle's length and width?

Decimals

16. Write as decimals.

a. three thousandths

b. 12 tenths

c. 67534 millionths

d. 27 ten-thousandths

17. Write as fractions or mixed numbers.

a. 0.034 **b.** 0.03467 **c.** 3.92432

18. Write in order from the smallest to the greatest.

a. 0.017 0.701 0.0711	**b.** 1.000306 1.00404 1.0403

19. Add mentally.

a.	**b.**	**c.**
$0.4 + 0.7 =$ _____	$0.02 + 0.06 =$ _____	$0.009 + 0.007 =$ _____
$0.4 + 0.07 =$ _____	$0.02 + 0.0006 =$ _____	$0.00009 + 0.007 =$ _____

20. Add or subtract mentally. Give your answers in decimals.

a. $1\frac{4}{10} + 0.06$ **b.** $0.1 + \frac{72}{100}$ **c.** $3.005 - \frac{2}{1000}$

21. Multiply mentally.

a. $0.8 \times 7 =$ _____	**b.** $10 \times 0.0005 =$ _____	**c.** $400 \times 0.09 =$ _____
d. $0.08 \times 0.07 =$ _____	**e.** $1000 \times 0.05 =$ _____	**f.** $0.012 \times 0.004 =$ _____

22. Divide mentally.

a. $0.036 \div 6 =$ _____	**b.** $3 \div 1000 =$ _____	**c.** $3.4 \div 100 =$ _____
d. $0.0048 \div 8 =$ _____	**e.** $0.07 \div 10 =$ _____	**f.** $710 \div 1000 =$ _____

23. Round to...

Number:	0.229748	1.056734	3.3349725
...three decimals			
...to the nearest ten-thousandth			

24. Find the value of the expression $6y$ when

a. $y = 0.02$	**b.** $y = 0.0002$	**c.** $y = 0.00002$

25. Calculate.

a. $0.93 + 1.3827$	**b.** $5.612 - 3.284378$	**c.** 2.3×0.78

26. Write as decimals. Round to five decimal digits.

a. $\frac{3}{7}$	**b.** $1\frac{2}{3}$

27. Multiply both the dividend and the divisor so that you get a *whole-number divisor*. Then divide using long division. Round the answers to the nearest thousandth.

a. 6.45 ÷ 0.3	**b.** 12.075 ÷ 0.05

28. You are packing books that weigh 14 oz each into a box that must not weigh more than 9 pounds. How many books can you put into the box?

29. Convert to the given unit. You may need the space for calculations.

a. 52 oz = _____ lb

b. 1.3 lb = _____ oz

c. 3.6 ft = _____ in

d. 76 in = _____ ft

30. Convert the measurements to the given units.

a. 125 cm = _____ m = _____ mm **b.** 300 g = _____ kg = _____ mg

31. You need 300 ml of flour for a cake. A flour bag has 2 kg of flour, and 1 kg of flour equals 1.6 liters. How many cakes can you make from the bag of flour?

32. A laptop weighs 3.3 kg, and its case weighs 650 grams. The airline has an 18-kg limit for your carry-on luggage. If you take the laptop with its case, how much weight is left for the rest of your carry-on luggage?

Number Theory

33. Is 283 divisible by 24? Justify your answer.

34. Mark an 'x' if the number is divisible by 2, 3, 4, 5, 6, or 9.

Divisible by	2	3	4	5	6	9
2,966						
9,423						

Divisible by	2	3	4	5	6	9
5,845						
278						

35. Factor the following numbers to their prime factors.

a. 22 / \	**b.** 65 / \	**c.** 48 / \

36. Find the greatest common factor of the given numbers.

a. 45 and 36

b. 40 and 200

37. Find the least common multiple for these pairs of numbers.

a. 3 and 7

b. 9 and 12

Fractions

38. If you can find an equivalent fraction, write it. If you can not, cross out the whole problem.

a. $\frac{5}{7} = \frac{\quad}{34}$	**b.** $\frac{\quad}{7} = \frac{8}{28}$	**c.** $\frac{9}{8} = \frac{56}{\quad}$	**d.** $\frac{6}{11} = \frac{72}{\quad}$

39. Add and subtract the fractions and mixed numbers.

a. $\frac{2}{5} + \frac{5}{6}$

b. $\frac{8}{9} - \frac{1}{3}$

c. $5\frac{1}{4} - 1\ \frac{1}{3}$

d. $3\frac{6}{7} + 4\frac{1}{4}$

40. Compare the fractions, and write <, >, or = in the box.

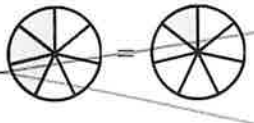
a. $\frac{2}{3} \square \frac{7}{11}$

b. $\frac{11}{13} \square \frac{4}{5}$

c. $\frac{56}{100} \square \frac{524}{1000}$

d. $\frac{3}{7} \square \frac{2}{5}$

41. Is the following multiplication correct? If not, correct it.

$\frac{2}{3} \times$  $=$

42. How many 1 3/4-inch pieces can you cut from a string that is 33 1/2 inches long?

43. Solve. Give your answer as a mixed number and in a simplified form.

a. $\frac{5}{9} \times 4$	**b.** $\frac{6}{7} \div \frac{2}{5}$
c. $\frac{3}{8} \times \frac{12}{15}$	**d.** $5\frac{1}{2} \div 1\frac{11}{12}$

44. Dad used 1/7 of his $1,785 to pay for rent.
Of what was left, he used 1/5 to pay a grocery bill.

a. How much was the grocery bill?

b. How much money does Dad have left now?

45. Of a chess club's members, 2/5 are girls,
and the rest are boys. There are 18 boys.
How many members does the club have?

46. Mary's vegetable garden is 5 1/2 feet by 5 1/2 feet.

a. Find its area in square feet.

b. Find its area in square inches.

47. A 3-ft board was cut into two pieces that were in the ratio of 1:7.
How long is each of the pieces?

48. A rectangle with the sides of 2 1/4 in. and 2 in. is enlarged in a ratio of 2:3.

a. Find the lengths of the sides of the resulting larger rectangle.
(Optionally, you can also draw the rectangles.)

b. Find the area of the resulting rectangle.

Percent

49. Write as percentages, fractions, and decimals.

a. ____% $= \frac{66}{100} =$ _____	**b.** 3% = ____ = _____	**c.** ____% = ____ = 0.89
d. 270% = ____ = _____	**e.** ____% $= \frac{15}{1000} =$ _____	**f.** ____% = ____ = 0.943

50. Write as a percentage. Round your answers to the tenth of a percent.

a. 1/7

b. 13/20

51. Jeans cost $20, but the store increased the price by 20%.
What is the new price?

52. Tina's book bag contains 12 fiction books and 4 non-fiction books.
What percentage of the books are non-fiction?

53. Meredith is 160 cm tall. Jane's height is 90% of Meredith's height.
How tall is Jane?

54. How much does a $5.40 lunch cost if it is discounted by 10%?

55. Arthur and Jim are babies. Arthur is 64 cm long and Jim is 80 cm long.
How many percent is Arthur's height of Jim's height?

56. A chess club had 15 members. Next year it has 20 members.
How many percent was the increase?

57. The rent was $200, and then it was lowered to $190.
What percent was the decrease?

Yes, it jumps to #67.

NO #58-66

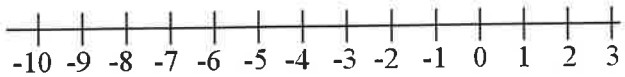
Integers

67. Order the numbers from the least to the greatest.

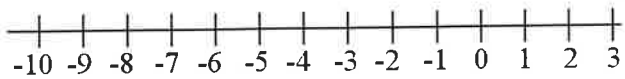
a. 7 0 −9 −7	**b.** −13 −23 −10 −3

68. Draw a number line jump for each addition or subtraction sentence.

a. −10 + 6 = _____ **b.** −5 + 7 = _____



c. −1 − 5 = _____ **d.** 3 − 8 = _____



69. Add and subtract.

a.	**b.**	**c.**	**d.**
3 + (−8) = _____	(−6) + (−9) = _____	2 + (−9) = _____	4 − (−2) = _____
(−3) + 8 = _____	6 − 9 = _____	−6 − 5 = _____	−4 − (−2) = _____

70. Multiply.

a. −3 × (−5) = _____	**b.** (−7) × (−8) = _____	**c.** (−2) × 3 × (−2) = _____
−3 × 5 = _____	7 × (−9) = _____	−8 × (−2) × (−1) = _____

71. Divide.

a. −20 ÷ (−5) = _____	**b.** (−48) ÷ (−4) = _____	**c.** −72 ÷ 8 = _____
33 ÷ (−3) = _____	21 ÷ (−7) = _____	−150 ÷ (−10) = _____

72. Find the missing numbers.

a. −5 + _____ = −10	**b.** 2 × _____ = −14	**c.** 3 − _____ = −2
d. −48 ÷ _____ = 6	**e.** 4 + _____ = 0	**f.** −1 − _____ = −9