

2014 Oak Park Back to School Packet for incoming 9th graders PART 1. Please show all your work in the space provided for each question.**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- What is the value of $3x + 7$ when $x = 3$?
 - 10
 - 13
 - 16
 - 24
- Simplify $6 + 4 \times 2 + \frac{16}{4} - 5$.
 - 3
 - 4
 - 12
 - 13
- What is the prime factorization of 54?
 - 1×54
 - $1 \times 2 \times 27$
 - $2 \times 3 \times 9$
 - $2 \times 3 \times 3 \times 3$
- Which set of numbers contains only prime numbers?
 - 2, 3, 17, 59
 - 2, 5, 15, 57
 - 1, 7, 13, 19
 - 0, 2, 11, 29
- Simplify $\frac{4 + 2 \times 9 - 6}{8}$.
 - 1
 - 2
 - 4
 - 6
- Which of the following is exactly divisible by 3?
 - 13
 - 22
 - 31
 - 51
- Write $3\frac{2}{7}$ as an improper fraction.
 - $\frac{12}{7}$
 - $\frac{13}{7}$
 - $\frac{42}{7}$
 - $\frac{23}{7}$
- Which list of numbers is ordered from least to greatest? Explain your answer.
 - $\frac{1}{2}, 2\frac{1}{2}, 0.2, 0.02$
 - $0.02, 0.2, 2\frac{1}{2}, \frac{1}{2}$
 - $0.02, 0.2, \frac{1}{2}, 2\frac{1}{2}$
 - $0.2, \frac{1}{2}, 0.02, 2\frac{1}{2}$
- Write $\frac{3}{5}$ as a decimal.
 - 0.3
 - 3.5
 - 0.6
 - 1.5

Short Answer

Each answer is graded on the following rubric.

4 pts - completely correct

3 pts - minor error(s)

2 pts - little understanding but work shown

1 pt - attempted problem with minimal understanding 0 pts - no response

10. Use the following list of numbers in parts (a) through (e).

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

- Write the prime numbers from the list.
- Write the multiples of 4 from the list.
- Write the factors of 20 from the list.
- Write the prime factors of 30 from the list.
- Write the composite numbers from the list.

11. What is the largest common factor of both 16 and 24?

12. What is the smallest multiple of both 2 and 3?

13. You can write 30 as a product of prime factors, or $2 \times 3 \times 5$. Write 50 as a product of its prime factors.

14. You can write 96 as a product of its prime factors, or $2 \times 2 \times 2 \times 2 \times 2 \times 3$. Write the prime factorization of 96 using exponents.

15. You and your friend cut a 12-foot rope into two pieces. One of the pieces of rope is 8 feet longer than the other. How long is each piece of rope?

16. Use the following list of numbers in parts (a) through (e).

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

- Write the prime numbers from the list.
- Write the multiples of 6 from the list.
- Write the factors of 18 from the list.
- Write the prime factors of 56 from the list.
- Write the composite numbers from the list.

The first six square numbers are 1, 4, 9, 16, 25, and 36. Use this list of numbers in the following question.

17. The two dot diagrams below represent the first two square numbers.



Draw dot diagrams to show that 9 and 16 are square numbers.

The first six square numbers are 1, 4, 9, 16, 25, and 36. Use this list of numbers in the following question.

18. Does the list of numbers above contain any prime numbers? Explain why or why not.

The first six square numbers are 1, 4, 9, 16, 25, and 36. Use this list of numbers in the following question.

19. From the list, write the multiples of four.
20. Use the three numbers and the total to create an equation that is true. The first one is done for you. Use each number once and any combination of operations.

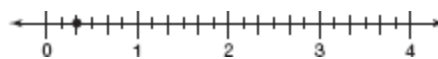
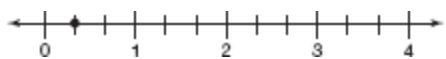
Numbers	Total	Equation
2, 3, 9	12	$2 \times (9 - 3) = 12$
1, 2, 4	9	

21. You and a friend are trying to remember how you spent your money when you went bowling. You remember spending a total of \$20 combined. You paid \$2.50 for each shoe rental. You played a total of 10 games. If every game cost the same amount, how much did each game cost?

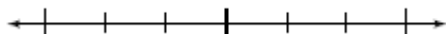
22. What fraction of the figure is shaded?



23. Write the fraction that is represented by the point on each number line.



24. Use a number line to represent $\frac{2}{3}$.



25. Use a rectangle to represent $\frac{5}{8}$.

27. Kenya and Jada started with the same amount of colored paper. Kenya used $\frac{1}{3}$ of her colored paper. Jada used $\frac{1}{4}$ of hers. Who has more paper now, Kenya or Jada? Explain your reasoning.

26. You share 5 pizzas equally among 4 people. How much pizza does each person get?

28. Maya's book has 168 pages. She reads 24 pages each night before she goes to bed. What fraction of her book does she read each night? Write your answer in simplest form. How long will it take Maya to finish the book?
29. Find the missing numbers in the equivalent fractions below.
- $$\frac{3}{8} = \frac{15}{?} \quad \frac{2}{5} = \frac{24}{?}$$
30. Order the fractions $\frac{1}{2}$, $\frac{2}{3}$, and $\frac{3}{5}$ from least to greatest.
31. On Thursday afternoon $\frac{6}{9}$ of the library computers were being used by students. What fraction of the computers were not being used?
32. Sumi collects mugs. She has 5 yellow, 8 blue, and some red mugs. The 5 yellow mugs represent $\frac{1}{5}$ of her total mugs. How many mugs does Sumi have? How many red mugs does she have?
33. Sort these statements into two piles. Each pile must contain matching statements.

$$6 \div 4$$

If I share 6 pizzas equally among 4 people, how much pizza will each person get?

$$\frac{6}{4}$$

$$4 \div 6$$

$$4 \overline{)6}$$

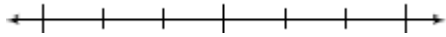
$$\frac{4}{6}$$

If I share 4 pizzas equally among 6 people, how much pizza will each person get?

$$6 \overline{)4}$$

34. Nine fractions are shown below. Which fractions are equivalent?
- | | | |
|-----------------|-----------------|-----------------|
| $\frac{12}{15}$ | $\frac{5}{6}$ | $\frac{16}{20}$ |
| $\frac{8}{10}$ | $\frac{15}{18}$ | $\frac{4}{5}$ |
| $\frac{7}{8}$ | $\frac{10}{12}$ | $\frac{20}{24}$ |
35. Find a number that lies between $\frac{4}{6}$ and $\frac{5}{6}$.
36. Corin gives away $\frac{2}{11}$ of her bag of trail mix to each of her 4 friends. How much trail mix does she keep for herself?
37. Tisha and Haley have the same amount of colored paper. Tisha uses $\frac{1}{3}$ of her colored paper. Haley uses $\frac{1}{4}$ of hers. How much paper did they use in all?

38. Use a number line to represent $1\frac{2}{3}$.



40. A student pours $\frac{8}{5}$ pints of juice into nine glasses. He pours an equal amount of juice into each glass. How much juice is in three glasses?

39. Marge has $1\frac{2}{3}$ pounds of donut mix and $2\frac{2}{3}$ pounds of pancake mix. How many pounds of baking mix does she have in all?

41. The top row of the table below shows three pairs of numbers. Complete the table by adding, subtracting, multiplying, or dividing each pair.

	$\frac{1}{3}$ and $\frac{2}{5}$	$1\frac{1}{3}$ and $1\frac{3}{8}$	$\frac{5}{4}$ and $\frac{10}{6}$
Add the two fractions.			
Subtract the smaller fraction from the larger fraction.			
Multiply the two fractions.			
Divide the fractions.			

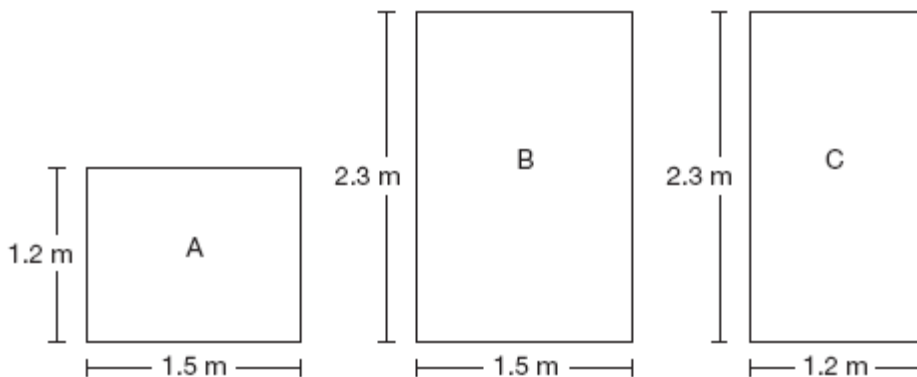
42. Michael was $3\frac{5}{6}$ feet tall when he entered sixth grade.

a. During middle school he grew $1\frac{3}{4}$ feet. How tall was he at the end of middle school?

b. Over the summer he grew another four inches. How tall was he at the end of the summer?

c. During high school Michael continued to grow. When he finished high school he was $6\frac{1}{4}$ feet tall. How much did he grow during high school?

43. Use the diagram of the three rectangles below to answer parts (a) and (b).



a. To find the perimeter of a rectangle, add the lengths of all four sides. Find the perimeter of each of the three rectangles.

Rectangle	Perimeter
A	
B	
C	

b. To find area of a rectangle, multiply the length of the rectangle by the width. Find the area of each of the three rectangles.

Rectangle	Area
A	
B	
C	

44. Use the 7 digits below to answer parts (a) and (b).

5 7 9 2 7 1 4

a. Using each digit once, what is the largest whole number you can make from the digits?

b. Using each digit once, what is the smallest whole number you can make from the digits?

45. Order the numbers below from least to greatest.

2.85 2.4 2.63 2.248

46. Write the number as a decimal: four hundred forty-four and forty-four thousandths.

47. Jordan has a checking account with a balance of \$48.76. On Friday he makes a deposit of \$11.28 and writes a check for \$14.50. What is his balance at the end of the day?

Name: _____

ID: A

48. A customer paid for her breakfast by credit card and received the receipt below.



49. Simplify each expression. Round your answers to the nearest tenth.

a. $0.75 + (1.5 - 0.8) \times 2 \div 1.4$

b. $\frac{1}{4} \times 8 \div \left(1 \frac{3}{4} + 0.125\right) - \frac{1}{5}$

To calculate the tip she doubles the tax.

- a. How much money does she leave for a tip?
- b. What is the total amount that she pays for breakfast?
50. Jane and Dana are roommates. They split the rent and bills evenly. The list below shows the money that they owe for the month of January. How much does each roommate owe?

Bills	Amount Due
gas and electric	\$44.94
cable	\$53.70
phone and internet	\$45.00
rent	\$1250