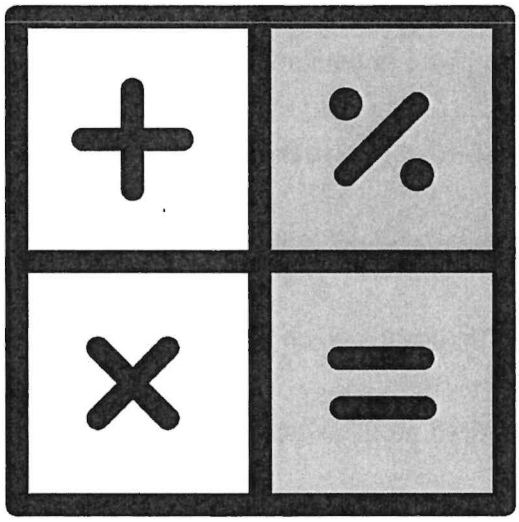
7th Grade Summer Math Packet



Name:_____

Due on the <u>first day</u> back to school.

This will count as the first test grade of Marking Period 1.

Place Value

hundred millions	ten millions	millions	hundred thousands	ten thousands	thousands	hundreds	tens	units	• decimal	tenths	hundredths	thousandths	ten thousandths

Solve each problem.

1) What digit is in the tens place in the number 35,176?

2) What digit is in the hundreds place in the number 9,714,852?

3) What digit is in the thousands place in the number 58,742?

4) What digit is in the ten thousands place in the number 86,915?

5) What digit is in the hundred thousands place in the number 2,148,637?

11) What place is the 5 at in the number 951,834?

12) What place is the 3 at in the number 369,428?

13) What place is the 1 at in the number 1,376,948?

14) What place is the 1 at in the number 87,541?

15) What place is the 6 at in the number 69?

16) What place is the 3 at in the number 659,317?

17) What place is the 7 at in the number 7,265?

18) What place is the 4 at in the number 49,781?

19) What place is the 2 at in the number 3,287,654?

Rounding

Rounding Decimals

Round 8.135 to the nearest tenth.

$8.1\underline{3}5 \rightarrow 8.1$

less than 5

Round 32.56713 to the nearest hundredth.

$32.56\underline{7}13 \rightarrow 32.57$

greater than 5

Round to the nearest whole number.

1. 41.803 =
2. 119.63 =
3. 20.05 =
4. 3.45 =
5. 79.531 =
6. 8.437 =
7. 29.37 =
8. 109.96 =

Round to the nearest tenth.

9. 33.335 =
10. 1.861 =
11. 99.96 =
12. 103.103 =
13. 16.031 =
14. 281.05 =
15. 8.741 =
16. 27.773 =

Round to the nearest hundredth.

17. 69.713 =
18. 5.569 =
19. 609.906 =
20. 247.898 =
21. 5.535 =
22. 67.1951 =
23. 14.0305 =
24. 6.9372 =

Mental Math

When multiplying by a power of 10, move the decimal to the right:
34.61 x 10 → move 1 place → 346.1
6.77 x 100 → move 2 places → 677

When dividing by a power of 10, move the decimal to the left:
7.39 ÷ 100 → move 2 place → 0.0739
105.61 ÷ 1000 → move 3 places → 0.10561

1. 4.81 x 100 =
2. 37.68 ÷ 10 =
3. 0.46 x 1,000 =
4. 7.12 ÷ 10,000 =
5. 5.4 x 10 =
6. 27,500 ÷ 1,000 =
7. 4.395 x 100,000 =
10. 90,000 ÷ 100 =
11. 0.000618 x 1,000 =
12. 39.006 ÷ 1,000 =
13. 16 x 100 =
14. 28.889 ÷ 10,000 =
15. 36.89 x 10,000 =
16. 0.091 ÷ 100 =

Fractions-basics

Identify which of the following are improper fractions.

1 a) $\frac{21}{2}$ b) $\frac{4}{5}$ c) $\frac{83}{126}$ d) $\frac{7}{6}$

Change the mixed numbers to improper fractions.

2 $2\frac{4}{5}$

3 $6\frac{11}{17}$

4 $12\frac{8}{45}$

5 $9\frac{3}{61}$

6 $87\frac{41}{69}$

Change the improper fractions to mixed numbers.

7 $\frac{8}{3}$

8 $\frac{10}{7}$

9 $\frac{56}{17}$

10 $\frac{132}{11}$

11 $\frac{94}{93}$

Simplify to lowest terms.

1. $\frac{3}{18}$

2. $\frac{15}{25}$

3. $\frac{6}{8}$

4. $\frac{37}{37}$

5. $\frac{66}{99}$

6. $\frac{35}{42}$

7. $\frac{100}{1000}$

8. $\frac{50}{1000}$

9. $\frac{7}{341}$

10. $2\frac{6}{30}$

11. $\frac{36}{12}$

12. $4\frac{29}{29}$

Adding and Subtracting Fractions

Solve: No Calculators! If needed, use the backside of this paper for additional workspace. **No work = no credit.**

Add or subtract as indicated. Reduce to lowest terms.

1. $\frac{12}{17} + \frac{3}{17}$

2. $\frac{11}{12} + \frac{1}{12}$

3. $\frac{7}{10} + \frac{2}{10} + \frac{8}{10}$

4. $\frac{1}{2} + \frac{2}{3}$

5. $2\frac{3}{5} + \frac{9}{10}$

6. $5\frac{1}{4} + 3\frac{5}{8} + 2\frac{1}{2}$

7. $\frac{8}{11} - \frac{5}{11}$

8. $\frac{7}{16} - \frac{5}{16}$

9. $\frac{7}{9} - \frac{2}{3}$

10. $\frac{2}{3} - \frac{1}{6}$

11. $1\frac{1}{2} - \frac{7}{10}$

12. $2\frac{1}{2} - 1\frac{3}{4}$

Multiply and Divide Fractions

Solve: No Calculators! If needed, use the backside of this paper for additional workspace. **No work = no credit.**

Multiply. Reduce to lowest terms.

1. $\frac{1}{2} \times \frac{3}{4}$
2. $\left(\frac{5}{9}\right)\left(\frac{3}{10}\right)$
3. $\frac{15}{4} \cdot \frac{12}{5}$
6. $\left(\frac{3}{5}\right)^2$
7. $3\frac{7}{8} \cdot \frac{5}{6}$
8. $\left(2\frac{1}{2}\right)\left(3\frac{1}{5}\right)$

Divide. Reduce to lowest terms.

1. $\frac{1}{2} \div \frac{4}{5}$
2. $\frac{4}{5} \div \frac{1}{2}$
3. $\frac{3}{10} \div \frac{9}{10}$
6. $1 \div \frac{1}{8}$
7. $5 \div \frac{2}{3}$
8. $6\frac{2}{5} \div 20$

Add and Subtract Decimals

Solve: No Calculators! If needed, use the backside of this paper for additional workspace. **No work = no credit.**

Add or subtract as indicated.

1. 1.1 + 2.8
2. 3.5 + 6.14
3. 9.242 + 0.87
4. 1.306 + 5.5 + 46.77
5. 2.01 + 8 + 0.593
6. 0.9 - 0.2
7. 12.66 - 3.41
8. 35.87 - 10.2
9. 40.4 - 6.37
10. 28 - 15.59

Multiply and Divide Decimals

Solve: No Calculators! If needed, use the backside of this paper for additional workspace. **No work = no credit.**

Multiply.

1. 0.7×0.4

2. 0.12×0.6

3. 31.002×9

6. $702 \cdot 3.19$

7. $(1.504)(1000)$

8. $(0.5)^2$

Use additional paper (or the backside) to complete these long division problems.

1. $4\overline{)29.6}$ _____

2. $3.1\overline{)10.261}$ _____

3. $2.4\overline{)16.8}$ _____

4. $0.96\overline{)0.144}$ _____

5. $38.5 \div 0.5 =$ _____

6. $23.85 \div 9 =$ _____

7. $5.6372 \div 0.17 =$ _____

8. $8.19 \div 4.2 =$ _____

Percents

Write each percent as a fraction or mixed number. Simplify.

1. 21%
2. 5%
3. 14%
4. 130%
5. $12\frac{1}{2}\%$

Write each percent as a decimal.

6. 47%
7. 26.3%
8. 219%
9. .02%
10. $3\frac{1}{2}\%$

Write each decimal as a percent.

11. 0.33
12. 0.04
13. 2.51
14. 6.8
15. 3

Write each fraction as a percent.

16. $\frac{3}{4}$
17. $\frac{2}{5}$
18. $\frac{1}{10}$
19. $\frac{1}{8}$
20. $2\frac{3}{5}$

Exponents

Solve. No Calculators! If needed, use the backside of this paper for additional workspace. **No work = no credit.**

Evaluate each expression.

5. 3^5 **6.** 7^3 **7.** 8^4 **8.** 5^3

Write each product in exponential form.

9. $2 \cdot 2 \cdot 2 \cdot 2$

10. $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7$

11. $10 \cdot 10 \cdot 10$

12. $9 \cdot 9 \cdot 9 \cdot 9 \cdot 9$

13. $12 \cdot 12 \cdot 12$

14. $5 \cdot 5 \cdot 5 \cdot 5$

15. $6 \cdot 6 \cdot 6 \cdot 6 \cdot 6$

16. $1 \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot 1$

Order of Operations

Simplify each expression using the Order of Operations (PEMDAS). No Calculators! If needed, use the backside of this paper for additional workspace. **No work = no credit.**

Evaluate each expression.

1. $(1 + 7) \times 3$

2. $28 - 4 \cdot 7$

3. $5 + 4 \cdot 3$

4. $(40 \div 5) - 7 + 2$

5. $35 \div 7(2)$

6. 3×10^3

7. $45 \div 5 + 36 \div 4$

8. $42 \div 6 \times 2 - 9$

9. $2 \times 8 - 3^2 + 2$

10. $5 \times 2^2 + 32 \div 8$

11. $3 \times 6 - (9 - 8)^3$

12. 3.5×10^2

Integers

Fill in the operator (<, > or =) that makes the statement true.

1. 19 __ 5
2. - 3 __ 3
3. 0 __ - 12
4. - 7 __ - 7
5. - 22 __ - 48

Find the number equivalent to the following absolute values.

6. | 6 |
7. | - 5 |
8. | 0 |
9. - | 2 |
10. - | - 8 |

Find the opposite of each number.

11. 9
12. - 34
13. 0
14. - 5.1
15. $\frac{3}{7}$

Write TRUE or FALSE for each statement.

16. | - 8 | > 0
17. | - 2 | = 2
18. | - 6 | < | - 5 |
19. 3 < - (- 4)
20. - | - 9 | > - | - 15 |

YOU MUST PRACTICE YOUR INTEGER OPERATIONS (ADDITION, SUBTRACTION, MULTIPLICATION, DIVISION) –memorize the rules!

Add.

1. $9 + 16$
2. $-10 + (-10)$
3. $18 + (-26)$
4. $-23 + (-15)$
5. $-45 + 35$
6. $39 + (-38)$
7. $-55 + 81$
8. $-61 + (-39)$
9. $-74 + 36$
10. $5 + (-4) + 8$
11. $-3 + 10 + (-6)$
12. $-13 + (-8) + (-12)$
13. $3 + (-10) + (-16) + 11$
14. $-17 + 31 + (-14) + 26$

Subtract.

1. $-3 - 4$
2. $5 - (-2)$
3. $-10 - 8$
4. $-15 - (-12)$
5. $-23 - (-28)$
6. $16 - 9$
7. $9 - 16$
8. $-21 - 16$
9. $28 - 37$
10. $-34 - (-46)$
11. $65 - (-6)$
12. $19 - |29|$

Multiply or divide.

1. $8(-8)$
2. $-3(-7)$
3. $-9(4)$
4. $12(8)$
5. $33 \div (-3)$
6. $-25 \div 5$
7. $48 \div 4$
8. $-63 \div (-7)$
9. $(-4)^2$
10. $\frac{-75}{15}$
11. $-6(3)(-5)$
12. $\frac{-143}{-13}$

Evaluate each expression if $a = -7$, $b = -3$, and $c = 5$.

13. $a - 8$
14. $20 - b$
15. $a - c$
16. $c - b$
17. $b - a - c$
18. $c - b - a$

Evaluate each expression if $x = 4$ and $y = -3$.

15. $11 + y$
16. $x + (-6)$
17. $y + 2$
18. $|x + y|$
19. $|x| + y$
20. $x + |y|$

Evaluate each expression if $a = -1$, $b = 4$, and $c = -7$.

13. $3c + b$
14. $a(b + c)$
15. $c^2 - 5b$
16. $\frac{a - 6}{c}$

Algebraic Expressions

Solve: No Calculators! If needed, use the backside of this paper for additional workspace. **No work = no credit.**

Simplify the expression by combining like terms.

1) $7b - 3b + 4$
A) $10b + 4$ B) $8b$ C) $4b + 4$ D) $-4b + 4$

2) $9x + x - 4x + x$
A) $7x$ B) $x^2 + 5x$ C) $5x$ D) $-x^2 + 5x$

3) $6a - 3a - a - 12$
A) $3a - a - 12$ B) $3a - 12$ C) $2a - 12$ D) $3a - 13$

4) $8x - 3 + 4x - 3$
A) 6 B) $6x$ C) $4x - 6$ D) $12x - 6$

Which terms are like terms? (Not all terms will be used.)

Circle all terms that can be combined with 3a.	*Draw a square around all terms that can be combined with 4b.*	*Underline all terms that can be combined with a^2.*	*Draw an X through all terms that can be combined with 5.*
1. $14a$	2. $5ab$	3. $3b$	4. $3a^2$
5. $4b^2$	6. 17	7. 100	8. $14ab$
9. $5a^3$	10. $4a$	11. $16b$	12. $73a^2$

Simplify the following expressions by combining like terms. Show all work on a separate sheet of paper and box your answer.

13. $4x - 6x$
14. $7y + 5y - 5y$
15. $4r + 4y - 8$
16. $3m + 4n - 6n$
17. $4g + 6g - 3g$
18. $15f - 5 + 2f$

Solving One-Step Equations

Solve: No Calculators! Show your work **AND** solutions on a separate piece of paper.
No work = no credit.

Solve each equation. Check your solution.

1. $s - 4 = 12$
2. $d + 2 = 21$
3. $h + 6 = 15$
4. $x + 5 = -8$
5. $b - 10 = -34$
6. $f - 22 = -6$
7. $17 + c = 41$
8. $v - 36 = 25$
9. $y - 29 = -51$
10. $19 = z - 32$
11. $13 + t = -29$
12. $55 = 39 + k$
13. $62 + b = 45$
14. $x - 39 = -65$
15. $-56 = -47 + n$

Solve each equation. Check your solution.

1. $\frac{r}{5} = 6$
2. $2d = 12$
3. $7h = -21$
4. $-8x = 40$
5. $\frac{f}{8} = -6$
6. $\frac{x}{-10} = -7$
7. $17c = -68$
8. $\frac{h}{-11} = 12$
9. $29t = -145$
10. $125 = 5z$
11. $13t = -182$
12. $117 = -39k$

Solving Equations With Negative Variables

Solve: No Calculators! Show your work **AND** solutions on a separate piece of paper.
No work = no credit.

1) $4 - x = 6$

2) $-3 - x = 7$

3) $5 - x = -2$

4) $-7 - x = -9$

5) $-5 = -x + 4$

6) $-13 = -x - 7$

7) $-x + 9 = 1$

8) $-x - 15 = -2$

9) $8 - x = -4$

Solving Two-Step Equations

Solve: No Calculators! Show your work **AND** solutions on a separate piece of paper.
No work = no credit.

1. **VOCABULARY** Why is the equation $5x - 12 = 23$ called a *two-step equation*?
2. **VOCABULARY** Identify the *like terms* in the equation $3x + 4x = 21$. Explain why they are like terms.

Solve the equation. Check your solution.

5. $8 + \frac{z}{4} = 23$
6. $\frac{a}{3} - 9 = 12$
7. $4c - 7 = 17$
8. $6 + \frac{x}{5} = 31$
9. $4b - 12 = 0$
10. $12w - 8 = 28$
11. $\frac{t}{19} - 9 = 13$
12. $131 = 7s + 12$
13. $42 + \frac{t}{9} = 54$
14. $2.4a + 8 = 27.2$
15. $\frac{s}{3} - 0.6 = 1.2$
16. $5t - 17.2 = 16.3$

ERROR ANALYSIS Describe and correct the error in solving the equation.

17.

$$4 = \frac{y}{8} + 1$$
$$32 = y + 1$$
$$31 = y$$

18.

$$28y + 7 = 21$$
$$28y = 28$$
$$y = 1$$