

Summer Homework Packet

Incoming 8th Grade

Dear Parents/Guardians and Students,

Throughout the summer it is very important to review topics from previous mathematics grade levels. The problems in this packet are designed to help you review and work on skills to be a successful 8th grade math student. This packet will count as a homework grade and these topics will appear on a qui at the beginning of the marking period (after a review is completed).

The summer homework packet is due **Wednesday, September 7th 2016**. In order to receive full credit for the summer homework assignment, all work must be shown (homework does not have to be 100% correct to receive full credit; it needs to be completed to the best of your ability and on time). There are two additional worksheets attached to the packet that are extra credit. These two pages do not have to be completed; however any student that completes them and shows their work will receive extra credit.

Have a wonderful summer!

Miss Wolf

* No Calculator

Review 105

Multiplying and Dividing Decimals

Multiply 5.43×1.8 .

- ① Multiply as if the numbers were whole numbers.

$$\begin{array}{r} 5.43 \left. \begin{array}{l} \text{3 decimal} \\ \text{places} \end{array} \right\} \\ \times 1.8 \\ \hline 4344 \end{array}$$

- ② Count the total number of decimal places in the factors.

$$\begin{array}{r} + 543 \\ \hline 9.774 \leftarrow \text{3 decimal places} \end{array}$$

- ③ Place the decimal point in the product.

Multiply $38.25 \div 1.5$.

- ① Rewrite the problem with a whole number divisor.

$$1.5 \overline{)38.25}$$

↓

- ② Place the decimal point in the quotient.

$$1.5 \overline{)38.25}$$

↑ ↑

Move 1 place each.

- ③ Divide. Then check.

$$\begin{array}{r} 25.5 \\ 15 \overline{)382.5} \\ \underline{-30} \\ 82 \\ \underline{-75} \\ 75 \\ \underline{-75} \\ 0 \end{array}$$

$25.5 \times 15 = 382.5 \checkmark$

Multiply to check.

Grade 7 Topics

Find each product.

1. $\begin{array}{r} 1.42 \\ \times 7.2 \\ \hline \end{array}$

2. $\begin{array}{r} 2.2 \\ \times 4.1 \\ \hline \end{array}$

3. $\begin{array}{r} 5.11 \\ \times -0.3 \\ \hline \end{array}$

4. $\begin{array}{r} 3.68 \\ \times 5.8 \\ \hline \end{array}$

5. 2.8×0.05

6. $1.45 \cdot 0.7$

7. $(2.07)(4.9)$

8. $9.3(0.56)$

9. $0.006(3.75)$

10. 3.8×912

Rewrite each problem so the divisor is a whole number.

11. $5.1 \overline{)351.9}$ _____

12. $1.8 \overline{)14.9}$ _____

13. $0.32 \overline{)39.68}$ _____

14. $0.06 \overline{)0.948}$ _____

15. $0.8 \overline{)2.112}$ _____

16. $0.49 \overline{)9.457}$ _____

Find each quotient.

17. $2 \overline{)15.8}$

18. $0.4 \overline{)2.2}$

19. $0.09 \overline{)0.99}$

20. $2.7 \overline{)12.15}$

21. $0.14 \overline{)28.14}$

22. $0.08 \overline{)0.64}$

***No Calculator**

Review 136

Multiplying Fractions and Mixed Numbers

Follow these steps to multiply fractions and mixed numbers.

Multiply: $\frac{3}{4} \cdot \frac{2}{5}$

Multiply: $2\frac{2}{3} \cdot 1\frac{5}{8}$

$\frac{8}{3} \cdot \frac{13}{8}$

① Write the mixed numbers as improper fractions if necessary.

$\frac{3 \cdot 2}{4 \cdot 5} = \frac{6}{20}$

$\frac{8 \cdot 13}{3 \cdot 8} = \frac{104}{24}$

② Multiply numerators.
Multiply denominators.

$\frac{6}{20} = \frac{3}{10}$

$\frac{104}{24} = 4\frac{1}{3}$

③ Simplify, if necessary.

Grade 7 Topics

Complete to find each product.

1. $\frac{1}{5} \cdot \frac{2}{3}$

$\frac{1 \cdot 2}{5 \cdot 3} = \frac{\square}{\square}$

Product _____

2. $\frac{1}{4} \cdot 4\frac{1}{8}$

$\frac{1}{4} \cdot \frac{\square}{8} = \frac{\square}{32}$

Product _____

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

$\frac{\square}{4} \cdot \frac{\square}{3} = \frac{\square}{12}$

Product _____

Find each product. Write the product in simplest form.

4. $\frac{5}{8} \cdot \frac{2}{5}$ _____

5. $\frac{2}{3} \cdot 9$ _____

6. $\frac{5}{12} \cdot \frac{3}{10}$ _____

7. $\frac{3}{4} \cdot 1\frac{1}{5}$ _____

8. $\frac{1}{2} \cdot 5\frac{1}{6}$ _____

9. $3\frac{4}{5} \cdot \frac{1}{6}$ _____

10. $1\frac{2}{3} \cdot 5$ _____

11. $1\frac{3}{4} \cdot 3\frac{1}{7}$ _____

12. $2\frac{3}{5} \cdot \frac{1}{4}$ _____

13. $2\frac{3}{5} \cdot \frac{7}{8}$ _____

14. $4\frac{1}{5} \cdot \frac{5}{7}$ _____

15. $\frac{1}{2} \cdot 2\frac{1}{8}$ _____

16. $3\frac{5}{6} \cdot 2\frac{1}{4}$ _____

17. $2\frac{5}{7} \cdot 1\frac{1}{3}$ _____

18. $7\frac{2}{3} \cdot 2\frac{1}{7}$ _____

19. $5\frac{1}{2} \cdot 2\frac{2}{3}$ _____

20. $\frac{5}{6} \cdot 3\frac{3}{5}$ _____

21. $7\frac{3}{4} \cdot 2$ _____

*No Calculator

Review 143

Unit Rates and Proportional Reasoning

A **rate** is a ratio that compares two quantities measured in different units.

The cost for 10 copies is \$1.50.

The rate is \$1.50/10 copies (\$1.50 per 10 copies).

A **unit rate** is a rate that has a denominator of 1. You can compare using unit rates.

To find the unit rate for 10 copies:

$$\begin{aligned} \$1.50/10 \text{ copies} &= \frac{\$1.50}{10} \\ &= \frac{\$1.50 \div 10}{10 \div 10} \\ &= \frac{\$0.15}{1} \end{aligned}$$

The unit rate is \$.15 per copy. This is also the *unit price*.

COPY CENTER	
Color Copies	
1 copy	\$0.25
10 copies	\$1.50
25 copies	\$2.50
50 copies	\$4.50
100 copies	\$6.00

For the better buy, compare unit rates.

The unit price for 10 copies is \$.15/copy.

The unit price for 1 copy is \$.25/copy.

Since \$.15 < \$.25, the 10-copy price is the better buy.

Grade 7 Topics

Use the Copy Center chart. Find the unit rate.

1. 25 copies

$$\frac{\$2.50}{25} = \frac{\$2.50 \div \square}{25 \div \square} =$$

2. 100 copies

$$\frac{\$6.00}{100} = \frac{\$6.00 \div \square}{100 \div \square} =$$

3. 50 copies

$$\frac{\$4.50}{50} = \frac{\$4.50 \div \square}{50 \div \square} =$$

Write the unit rate for each situation.

4. drive 1,800 mi in 30 h

5. 390 mi on 15 gal of

6. jog 4,000 m in 12 min

7. \$25.50 for 17 tickets

8. 456 mi on 12 gal of

9. 54 c of flour for 12

Find each unit price. Then determine the better buy.

10. juice: 18 oz for \$1.26
8 oz for \$.70

11. cloth: 2 yd for \$3.15
6 yd for \$7.78

12. socks: 2 pairs for \$3.50
6 pairs for \$9.00

13. pecans: 1 lb for \$4.80
2 oz for \$1.00

** No Calculator*

Review 109

Adding and Subtracting Integers

Use these rules to add and subtract integers.

Adding Integers

Same Sign

Different Signs

<ul style="list-style-type: none"> • The sum of two positive integers is positive. Example: $6 + 16 = 22$ • The sum of two negative integers is negative. Example: $-9 + (-3) = -12$ 	<ul style="list-style-type: none"> • First find the absolute values of each number. • Then subtract the lesser absolute value from the greater. • The sum has the sign of the integer with the greater absolute value. Example: $-10 + 9 = -1$
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Subtracting Integers

- To subtract integers, add the opposite.
- Then following the rules for adding integers.
Example: $6 - (-3) = 6 + 3 = 9$

Find each sum.

- | | | |
|-----------------------|----------------------|----------------------|
| 1. $8 + (-2)$ _____ | 2. $-9 + 4$ _____ | 3. $3 + (-2)$ _____ |
| 4. $-1 + 11$ _____ | 5. $12 + 13$ _____ | 6. $-9 + 5$ _____ |
| 7. $7 + 2$ _____ | 8. $-1 + (-7)$ _____ | 9. $-3 + 0$ _____ |
| 10. $-1 + (-1)$ _____ | 11. $6 + 5$ _____ | 12. $3 + (-2)$ _____ |

Complete.

- | | | |
|------------------|--------------------------------------------|--|
| 13. $-3 - 4$ | Change to addition: $-3 +$ _____ $=$ _____ | |
| 14. $5 - 2$ | Change to addition: $5 +$ _____ $=$ _____ | |
| 15. $-6 - (-10)$ | Change to addition: $-6 +$ _____ $=$ _____ | |
| 16. $8 - (-2)$ | Change to addition: $8 +$ _____ $=$ _____ | |

Find each difference.

- | | | |
|-----------------------|-----------------------|-----------------------|
| 17. $4 - 5$ _____ | 18. $-5 - 4$ _____ | 19. $-8 - (-7)$ _____ |
| 20. $19 - (-6)$ _____ | 21. $-10 - 12$ _____ | 22. $-12 - 10$ _____ |
| 23. $-4 - (-5)$ _____ | 24. $-2 - (-3)$ _____ | 25. $9 - (-7)$ _____ |
| 26. $0 - 3$ _____ | 27. $6 - 8$ _____ | 28. $0 - (-10)$ _____ |

**NO Calculator*

Review 110

Multiplying and Dividing Integers

To multiply integers:

- If the signs are alike, the product is positive.

$$2 \cdot 3 = 6$$

$$-2 \cdot -3 = 6$$

- If the signs are different, the product is negative.

$$2 \cdot -3 = -6$$

$$-2 \cdot 3 = -6$$

To divide integers:

- If the signs are alike, the quotient is positive.

$$6 \div 3 = 2$$

$$-6 \div -3 = 2$$

- If the signs are different, the quotient is negative.

$$6 \div -3 = -2$$

$$-6 \div 3 = -2$$

Grade 7 Topics

Study these four examples. Write positive or negative to complete each statement.

$$7 \cdot 3 = 21$$

$$-7 \cdot -3 = 21$$

$$7 \cdot -3 = -21$$

$$-7 \cdot 3 = -21$$

- When both integers are positive, the product is _____.
- When one integer is positive and one is negative, the product is _____.
- When both integers are negative, the product is _____.

$$21 \div 3 = 7$$

$$21 \div -3 = -7$$

$$-21 \div -3 = 7$$

$$-21 \div 3 = -7$$

- When both integers are positive, the quotient is _____.
- When both integers are negative, the quotient is _____.
- When one integer is positive and one is negative, the quotient is _____.

Tell whether each product or quotient will be *positive* or *negative*.

7. $4 \cdot 7$

8. $-4 \cdot 7$

9. $-4 \cdot -7$

10. $4 \cdot -7$

11. $-28 \div 4$

12. $28 \div 4$

13. $-28 \div -7$

14. $28 \div -7$

15. $10 \cdot -4$

16. $-25 \div 5$

17. $-2 \cdot -2$

18. $100 \div 10$

*No Calculators

Review 117

Exploring Two-Step Problems

You can change a word expression into an algebraic expression by converting the words to variables, numbers, and operation symbols.

To write a two-step algebraic expression for *seven more than three times a number*, follow these steps.

- | | |
|-----------------------------------------|------------------------------------------------------|
| ① Define the variable. | Let n represent the number. |
| ② Ask yourself are there any key words? | "More than" means add and
"times" means multiply. |
| ③ Write an algebraic expression. | $7 + 3 \cdot n$ |
| ④ Simplify. | $7 + 3n$ |

Define a variable and write an algebraic expression for each phrase.

- 3 inches more than 4 times your height
- 4 less than 6 times the weight of a turkey
- 8 more than one-half the number of miles run last week
- twice the cost plus 30

Solve.

- Three friends pay \$4 per hour to rent a paddleboat plus \$5 for snacks. Write an expression for the total cost of rental and snacks. Then evaluate the expression for 2 hours.
- A lawn care service charges \$10 plus \$15 per hour to mow and fertilize lawns. Write an expression for the total cost of having your lawn mowed and fertilized. Then evaluate the expression for 4 hours.

Solve each equation using number sense.

- | | | |
|--------------------|---------------------------|---------------------------|
| 7. $2s + 6 = 12$ | 8. $\frac{f}{10} - 1 = 2$ | 9. $4r - 7 = 9$ |
| _____ | _____ | _____ |
| 10. $4x - 10 = 30$ | 11. $2n - 7 = 13$ | 12. $\frac{s}{3} + 2 = 4$ |
| _____ | _____ | _____ |

* No Calculator

Review 150

Percents, Fractions, and Decimals

To write a percent as a fraction, write a fraction with 100 as the denominator.

$$45\% = \frac{45}{100} \quad \leftarrow \text{Denominator 100}$$

$$= \frac{45 \div 5}{100 \div 5} = \frac{9}{20} \quad \leftarrow \text{Simplify.}$$

$$45\% = \frac{9}{20}$$

To write a decimal as a percent, multiply by 100.

Write 0.85 as a percent.

$$0.85 \cdot 100 = 85$$

$$0.85 = 85\%$$

To write a percent as a decimal, divide by 100.

Write 46% as a decimal.

$$46 \div 100 = 0.46$$

$$46\% = 0.46$$

Grade 7 Topics

Write each fraction as a percent.

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

2. $\frac{12}{25}$

3. $\frac{4}{5}$

4. $\frac{23}{4}$

Write each percent as a fraction in simplest form.

5. 45%

6. 60%

7. 16%

8. 25%

9. 37.5%

10. 99%

11. 40%

12. 86%

Write each percent as a decimal or each decimal as a percent.

13. 35%

14. 48%

15. 116%

16. 8%

17. 12%

18. 5.5%

19. 400%

20. 0.6%

21. 0.39

22. 0.735

23. 0.86

24. 0.34

25. 0.4

26. 0.6

27. 0.004

28. 6

*No Calculators

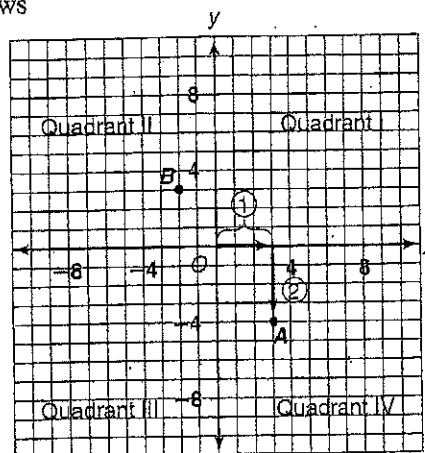
Review 186

Graphing Points in Four Quadrants

The intersection of a horizontal number line and a vertical number line forms the **coordinate plane**. The coordinate plane below shows point *A* for the **ordered pair** (3, -4).

To graph point *A* with **coordinates** (3, -4):

- ① Start at the origin, *O*. Move 3 units to the right.
- ② Move 4 units down for -4. Draw point *A*.



The axes form four **quadrants** in the coordinate plane.

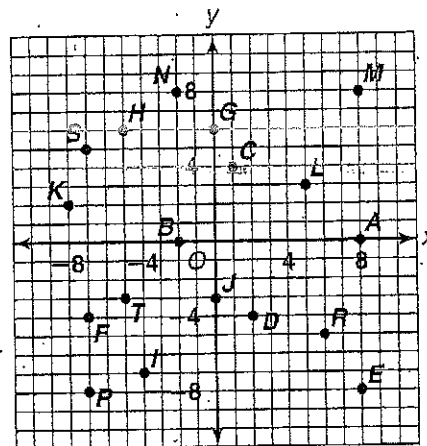
- The point (3, -4) is located in quadrant IV.
- Point *B* is located in quadrant II.

The line containing two points with the same *x*-coordinate is a vertical line. The line containing two points with the same *y*-coordinate is a horizontal line.

Grade 7 Topics

Name the point with the given coordinates.

- | | |
|------------------|-------------------|
| 1. (8, 0) _____ | 2. (8, -8) _____ |
| 3. (1, 4) _____ | 4. (-7, -4) _____ |
| 5. (-5, 6) _____ | 6. (-2, 0) _____ |
| 7. (6, -5) _____ | 8. (-5, -3) _____ |



Write the coordinates of each point.

- | | |
|--------------------|--------------------|
| 9. <i>D</i> _____ | 10. <i>G</i> _____ |
| 11. <i>I</i> _____ | 12. <i>J</i> _____ |
| 13. <i>K</i> _____ | 14. <i>L</i> _____ |
| 15. <i>M</i> _____ | 16. <i>S</i> _____ |

Identify the quadrant in which each point lies.

- | | | | |
|--------------------|--------------------|--------------------|--------------------|
| 17. <i>F</i> _____ | 18. <i>C</i> _____ | 19. <i>D</i> _____ | 20. <i>H</i> _____ |
| 21. <i>N</i> _____ | 22. <i>P</i> _____ | 23. <i>S</i> _____ | 24. <i>R</i> _____ |

Without graphing, tell whether the line containing each pair of points is vertical or horizontal.

- | | | |
|---------------------------|---------------------------|---------------------------|
| 25. <i>F</i> and <i>P</i> | 26. <i>H</i> and <i>G</i> | 27. <i>A</i> and <i>M</i> |
|---------------------------|---------------------------|---------------------------|

Review 180

**Extra Credit*

Function Rules

The function table shows the relationship between inputs and outputs.
A function rule for this table is:

$$\text{output} = 4 \cdot \text{input}$$

You can use the function rule $y = 2x + 3$ to find y when $x = 0, 1, 2,$ and 3 .
Replace x with $0, 1, 2,$ and 3 .

Input	Output
1	4
2	8
3	12

x	$y = 2x + 3$
0	$2(0) + 3 = 3$
1	$2(1) + 3 = 5$
2	$2(2) + 3 = 7$
3	$2(3) + 3 = 9$

Grade 7 Topics

Write input-output function rules for each table of values.

1.

Input	Output
3	6
4	8
5	10
6	12

2.

Input	Output
1	3
2	4
3	5
4	6

3.

Input	Output
1	45
2	90
3	135
4	180

Make a table for the function represented by each rule. Find y when $x = 0, 1, 2,$ and 3 .

4. $y = 10x$

x	y
0	
1	
2	
3	

5. $y = x - 4$

x	y
0	
1	
2	
3	

6. $y = 2x + 4$

x	y
0	
1	
2	
3	

7. $y = 3x - 1$

x	y
0	
1	
2	
3	

8. A printer can print 9 black and white pages per minute.
- Write a function rule to represent the relationship between the number of black and white printed pages and the time it takes to print them.
 - How many black and white pages can be printed in 15 minutes?
 - How long would it take to print a 75 page black and white report?

Review 187 *Extra Credit

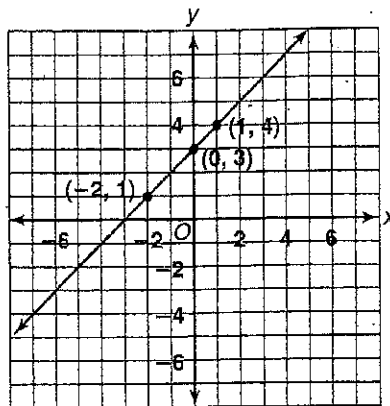
Graphing Linear Equations

The solutions of $y = x + 3$ are the (x, y) pairs that make the equation true.

The solutions can be graphed in the coordinate plane, as shown.

The solutions can be listed in a table.

x	$x + 3$	y	(x, y)
0	$0 + 3$	3	$(0, 3)$
1	$1 + 3$	4	$(1, 4)$
-2	$-2 + 3$	1	$(-2, 1)$



If all the solutions lie on a line, the equation is a **linear equation** and the line is its **graph**.

$y = x + 3$ is a linear equation.

Complete each table.

1. $y = x - 4$

x	$x - 4$	y	(x, y)
2			
4			
6			

2. $y = 3x$

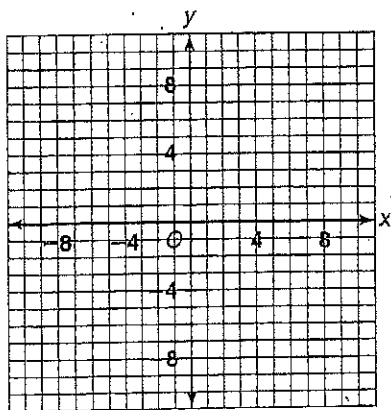
x	$3x$	y	(x, y)
-1			
0			
3			

3. $y = -x + 1$

x	$-x + 1$	y	(x, y)
0			
2			
-3			

Graph each linear equation.

4. $y = x - 5$



5. $y = 3x - 4$

