# Summer Homework Packet

## Incoming 7th 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 7th grade math student. This packet will count as a homework grade and these topics will appear on a quiz at the beginning of the marking period (after a review is completed).

The summer homework packet is due Wednesday, September 9th 2015. In order to receive full credit for the summer homework assignment, all work must be shown on a separate sheet of paper (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 Brooks

7th grade math teacher

Name _____ Class _____ Date _____

# Review 4

No calculator - Show work on seperate paper

## Estimating with Decimals

To *round* $76.38 to the nearest dollar:

1. Find the rounding place. $76.38
2. Look at the digit to the right. $76.38
3. If that digit is less than 5, leave the digit in the rounding place as is. If the digit is 5 or greater, round up.

$76.38 rounds to $76.

You can use rounding to estimate a sum.

$3.76 + 0.85 + 4.09$

Round each number to the ones place.

$3.76 \rightarrow 4$
$0.85 \rightarrow 1$
$4.09 \rightarrow 4$

Then add. 9

The sum is about 9.

You can estimate decimal products, quotients, sums, and differences by using *compatible numbers.*

*Example 1* Estimate the product $9.47 \times 3.81$

$9.47 \rightarrow 10$
$\times 3.81 \rightarrow \times 4$
$40$

**Change to compatible numbers—numbers that are easy to multiply.**

The product is about 40.

*Example 2* Estimate the quotient $23.96 \div 4.78$.

$23.96 \div 4.78$
$24 \div 4 = 6$

**Change to compatible numbers—numbers that are easy to divide.**

The quotient is about 6.

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**Round each decimal to the nearest hundredth.**

1. 1.679 _____
2. 4.981 _____
3. 12.602 _____
4. 32.9744 _____
5. 0.159 _____
6. 2.008 _____

**Round each decimal to the nearest tenth.**

7. 6.457 _____
8. 15.0886 _____
9. 0.1235 _____
10. 1.036 _____
11. 25.671 _____
12. 6.390 _____

**Estimate each sum or difference.**

13. $2.98 + 7.22$
14. $5.33 + 2.91$
15. $10.02 - 6.89$
16. $15.84 + 37.12$

**Use compatible numbers to estimate.**

17. $7.21 \div 3$ _____
18. $31.74 \div 5$ _____
19. $522 + 81$ _____
20. $908 - 445$ _____
21. $477 + 78$ _____
22. $73 + 229$ _____

Name _____ Class _____ Date _____

# Review 10

Order of Operations

To find the value of an expression follow the *order of operations.*

**First,** do all operations inside parentheses.
**Next,** multiply and divide from left to right.
**Then,** add and subtract from left to right.

no calculator
Show work on seperate paper

*Example 1* Find the value of $6 + (3 + 4) \times 2$.

① Work inside parentheses. ⟶ **(3 + 4) = 7**

$6 + \mathbf{7} \times 2$

② Multiply next. ⟶ **7 × 2 = 14**

$6 + \mathbf{14}$

③ Then, add.

$6 + 14 = 20$

*Example 2* Compare $10 - (6 \div 2) + 1$ and $(10 - 6) \div 2 + 1$.

First, find the value of each expression.

| $10 - (6 \div 2) + 1$ | $(10 - 6) \div 2 + 1$ |
|---|---|
| $10 - 3 + 1$ | $4 \div 2 + 1$ |
| $7 + 1$ | $2 + 1$ |
| $8$ | $3$ |

Then, use <, =, or > to compare.

$8 > 3$

So,

$10 - (6 \div 2) + 1 > (10 - 6) \div 2 + 10$.

**Find the value of each expression.**

1. $3 + (4 + 1) \times 2$
   a. $4 + 1 =$ _____
   b. _____ $\times 2 =$ _____
   c. $3 +$ _____ = _____

2. $24 \div (5 + 3) - 2$
   a. $5 + 3 =$ _____
   b. $24 \div$ _____ = _____
   c. _____ $- 2 =$ _____

3. $2 + 6 \times 3 \div 3 =$ _____

4. $(6 + 2) \times 3 \div 4 =$ _____

5. $7 + 5 \times 2 - 6 =$ _____

6. $12 \div 3 \times 5 - 6 =$ _____

**Use <, =, or > to complete each statement.**

7. $9 + 3 \times 4 \square 9 + (3 \times 4)$

8. $(12 - 4) \times 3 \square 12 - (4 \times 3)$

9. $6 \div 3 + 4 \times 2 \square (6 \div 3) + 4 \times 2$

10. $3 \times (12 - 5) + 2 \square 3 \times 12 - (5 + 2)$

11. $15 - (12 \div 3) \square (15 - 12) + 3$

12. $8 + 2 \times (9 - 7) \square 8 + (2 \times 9) - 7$

13. $10 + (10 \div 5) \square 10 + 10 \div 5$

14. $20 - (2 \times 6) \square (20 - 2) \times 6$

Name _____ Class _____ Date _____

# Review 24

## Mixed Numbers and Improper Fractions

To write a mixed number as an *improper fraction:*

① Multiply the whole number by the denominator.

② Add this product to the numerator.

③ Write this sum over the denominator.

$3\frac{5}{8} = \frac{29}{8}$ (② ③ ①)

To write an improper fraction as a *mixed number:*

① Divide the numerator by the denominator. $\frac{20}{8} = 2$ remainder 4

② Write the remainder over the denominator. $= 2\frac{4}{8}$

③ Simplify, if possible. $= 2\frac{1}{2}$

$\frac{20}{8} = 2\frac{1}{2}$

No calculator show work on seperate paper

**Write each mixed number as an improper fraction.**

1. $2\frac{2}{7}$ _____
2. $5\frac{3}{4}$ _____
3. $6\frac{1}{2}$ _____
4. $6\frac{5}{8}$ _____
5. $3\frac{4}{10}$ _____
6. $4\frac{3}{5}$ _____
7. $9\frac{1}{3}$ _____
8. $4\frac{4}{5}$ _____
9. $1\frac{7}{8}$ _____
10. $3\frac{3}{8}$ _____
11. $2\frac{3}{7}$ _____
12. $8\frac{1}{6}$ _____

**On a separate sheet of paper, draw a model of a 4-inch ruler marked off in eighths. Find and label each measurement on your ruler.**

13. $3\frac{5}{8}$
14. $2\frac{6}{8}$
15. $3\frac{1}{2}$
16. $1\frac{3}{4}$
17. $2\frac{1}{2}$
18. $3\frac{1}{4}$

**Write each improper fraction as a mixed number in simplest form.**

19. $\frac{9}{8}$ _____
20. $\frac{7}{2}$ _____
21. $\frac{12}{5}$ _____
22. $\frac{8}{3}$ _____
23. $\frac{14}{8}$ _____
24. $\frac{6}{5}$ _____
25. $\frac{20}{3}$ _____
26. $\frac{17}{5}$ _____
27. $\frac{18}{4}$ _____
28. $\frac{9}{5}$ _____
29. $\frac{29}{8}$ _____
30. $\frac{24}{9}$ _____

Name _____ Class _____ Date _____

# Review 50 No Calculator

Percents, Fractions, and Decimals

- To *write a percent as a fraction* in simplest form, first write a fraction with a denominator of 100. Then simplify.

  $74\% = \frac{74}{100} = \frac{37}{50}$

- To *write a percent as a decimal,* first write a fraction with a denominator of 100. Then write the decimal.

  $74\% = \frac{74}{100} = 0.74$

- To *write a decimal as a percent,* move the decimal point two places to the right.

  $0.23 = 23\%$

Here are two ways to *write a fraction as a percent.*

- Write an equivalent fraction with a denominator of 100, then write the percent.

  $\frac{3}{20} = \frac{15}{100} = 15\%$

- Divide the numerator by the denominator.

$$\frac{3}{8} = \begin{array}{r} 0.375 \\ 8\overline{)3.000} \\ -24 \\ \hline 60 \\ -56 \\ \hline 40 \\ -40 \\ \hline 0 \end{array} = 37.5\%$$

↑ Move the decimal point two places to the right.

So, $\frac{3}{8} = 37.5\%$.

No Calculator - Show work on seperate paper

**Write each percent as a decimal and as a fraction in simplest form.**

| | | | |
|---|---|---|---|
| **1.** 30% | **2.** 14% | **3.** 16% | **4.** 5% |
| **5.** 92% | **6.** 80% | **7.** 21% | **8.** 38% |

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

| | | | |
|---|---|---|---|
| **9.** $\frac{17}{25}$ | **10.** 0.85 | **11.** 0.16 | **12.** $\frac{5}{40}$ |
| **13.** $\frac{7}{200}$ | **14.** $\frac{1}{10}$ | **15.** 0.64 | **16.** 0.008 |
| **17.** $\frac{9}{20}$ | **18.** $\frac{6}{15}$ | **19.** 0.32 | **20.** 0.07 |
| **21.** $\frac{13}{100}$ | **22.** $\frac{45}{50}$ | **23.** 0.010 | **24.** 0.60 |

Name _____ Date _____

# Review 54

Show work on separate paper

## Mean, Median, and Mode

- The *mean* of a set of data is the sum of the values divided by the number of data items.
  74 + 77 + 80 + 81 + 85 + 87 + 94 + 94 = 672
  672 ÷ 8 = 84
  The mean math test grade is 84.
- The *median* of a data set is the middle value when the data are arranged in numerical order. When the grades are arranged in order from least to greatest, there are two middle numbers.
  74, 77, 80, 81, 85, 87, 94, 94
  To find the median, add the two middle numbers and divide the total by 2.
  81 + 85 = 166
  166 ÷ 2 = 83
  The median grade is 83.
- The *mode* of a data set is the item in the data set that appears most often. For this data, 94 is the mode.

| Math Test Grades | |
|---|---|
| Sharon | 81 |
| Rashid | 94 |
| Durrin | 77 |
| Nicole | 80 |
| Terry | 74 |
| Mei-lin | 94 |
| Kevin | 87 |
| Carlos | 85 |

**Find the mean of each data set.**

1. 8, 6, 5, 9, 7, 13 _____
2. 12, 10, 16, 14, 8, 24 _____
3. 9, 12, 14, 6, 8, 5 _____
4. 104, 126, 128, 100, 97 _____
5. 86, 68, 70, 48, 66, 76 _____
6. 65, 50, 95, 35, 75, 100 _____

**Find the median of each data set.**

7. 5, 4, 7, 9, 8 _____
8. 12, 16, 19, 14, 14, 18 _____
9. 9, 19, 21, 13 _____
10. 46, 38, 22, 48, 61 _____
11. 60, 57, 53, 78, 44, 51 _____
12. 8, 6, 6, 5, 8, 9 _____

**Find the mode of each data set.**

13. 3, 4, 5, 5, 3, 5, 4, 2 _____
14. 1, 2, 1, 1, 2, 2, 3, 1 _____
15. 6, 8, 3, 8, 3, 9, 3 _____
16. 33, 35, 34, 33, 35, 33 _____
17. 98, 97, 98, 98, 97 _____
18. 110, 121, 121, 110, 115, 117, 119 _____

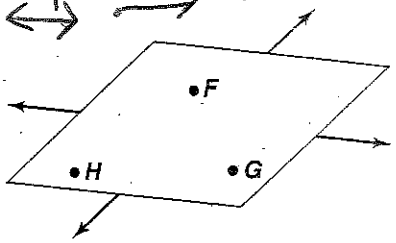
Name _____ Class _____ Date _____

# Review 62

Use symbols!

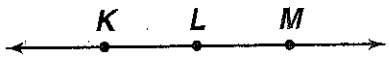
Points, Lines, Segments, and Rays

Each *point F, G,* and *H,* indicates an exact location in space.




*Plane FGH* is flat and extends indefinitely as suggested by the arrows.

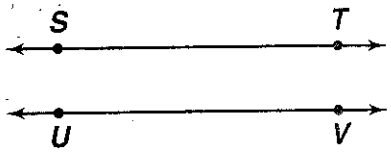
*Line KM* ($\overleftrightarrow{KM}$) is a series of points that extends in two opposite directions without end.




*Segment LM* ($\overline{LM}$) is part of $\overleftrightarrow{KM}$. The points $L$ and $M$ are endpoints of $\overline{LM}$.

*Ray LM* ($\overrightarrow{LM}$) is part of a line. Point $L$ is its only endpoint.

$\overleftrightarrow{ST}$ and $\overleftrightarrow{UV}$ are *parallel lines.* They are in the same plane but do not intersect. They have no points in common.




Points on the same line are *collinear.* Points $S$ and $T$ are collinear.

*Skew lines* are neither parallel nor intersecting.

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**Read each statement. Write *true* or *false*.**

1. A line has two endpoints. _____

2. A plane has only two points. _____

3. A segment is part of a line. _____

4. A plane is flat. _____

5. Collinear points lie on different lines. _____

6. A ray has two endpoints. _____

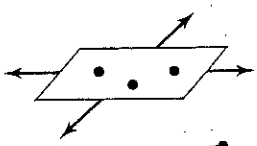
7. A ray has no beginning or end. _____

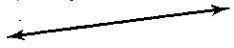
8. A plane contains only one line. _____

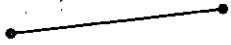
9. Parallel segments do not intersect. _____

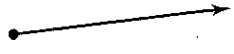
10. Skew lines intersect. _____

**Match each figure with its name.**

11.  _____

12.  _____

13.  _____

14.  _____

a. ray

b. plane

c. line

d. segment

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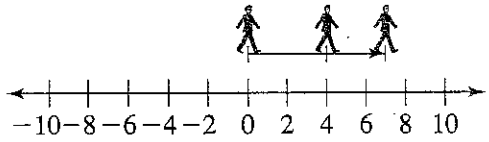
# Review 82 No Calculator

Adding Integers

You can add integers on a number line.

*Example 1:* Find 4 + 3.

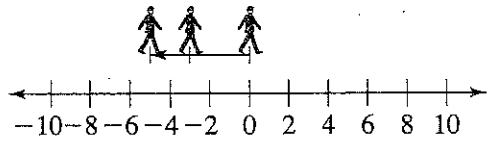
Start at 0. Move 4 units right and then 3 units right.




4 + 3 = 7

*Example 2:* Find −3 + −2.

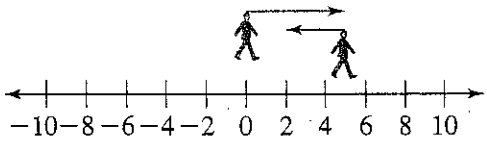
Start at 0. Move 3 units left and then 2 units left.




−3 + (−2) = −5

*Example 3:* Find 5 + (−3)

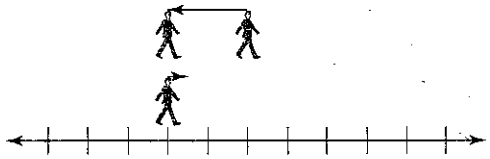
Start at 0. Move 5 units right and then 3 units left.



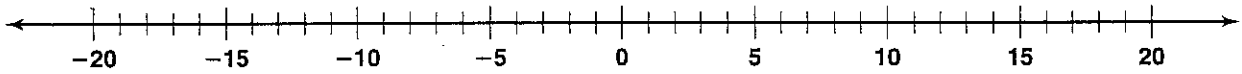

5 + (−3) = 2

*Example 4:* Find −4 + 1.

Start at 0. Move 4 units left and then 1 unit right.




−4 + 1 = −3




**Use the number line to find each sum.**

1. 3 + 2 _____
2. 6 + 4 _____
3. −4 + (−1) _____
4. −4 + (−8) _____
5. 4 + (−1) _____
6. −6 + 8 _____
7. −7 + 3 _____
8. −5 + 8 _____
9. 3 + 5 _____
10. −3 + (−5) _____
11. 3 + (−5) _____
12. −3 + 5 _____

**Find each sum.**

13. −6 + (−4) _____
14. 7 + (−2) _____
15. −1 + (−6) _____
16. 9 + (−2) _____
17. −6 + (−6) _____
18. 13 + 3 _____
19. −14 + (−5) _____
20. 5 + (−12) _____
21. −9 + 9 _____
22. 18 + (−18) _____
23. 0 + (−4) _____
24. 6 + 0 _____
25. 15 + (−15) _____
26. −12 + 0 _____
27. −9 + 10 _____
28. 12 + (−11) _____
29. −12 + 11 _____
30. 2 + (−10) _____

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# Review 86

Graphing in the Coordinate Plane

*Example:* Graph (2, −4).

- 2 is the *x-coordinate.* It tells how far to move left or right from the origin.
- −4 is the *y-coordinate.* It tells how far to move up or down from the origin.

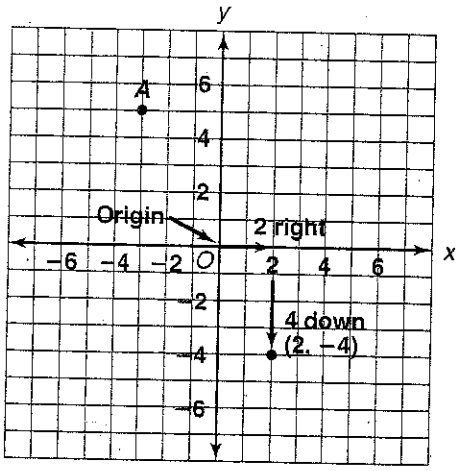
Find the coordinates of point *A*.

① Start at the origin.

② How far left or right? *3 left*
The *x-coordinate* is −3.

③ How far up or down? *5 up*
The *y-coordinate* is 5.

The coordinates of point *A* are (−3, 5).

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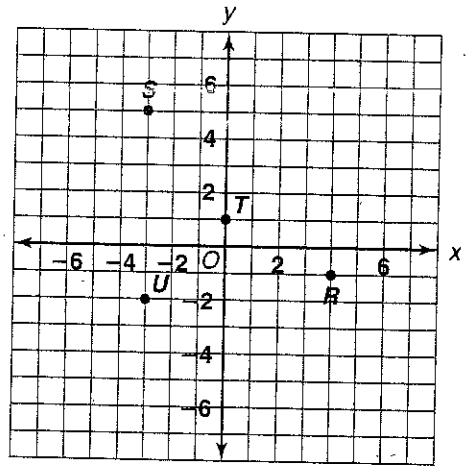
**Graph each point in a coordinate plane.**

1. *B* (1, 6)
2. *C* (−4, −3)
3. *D* (0, 5)
4. *E* (−2, 2)
5. *F* (−1, −5)
6. *G* (6, −4)
7. *H* (5, 5)
8. *J* (4, 0)
9. *K* (−4, −4)
10. *L* (2, −3)
11. *M* (−2, 0)
12. *N* (5, −1)
13. *P* (0, −3)
14. *Q* (−4, 0)




**Find the coordinates of each point.**

15. *R* _____
16. *S* _____
17. *T* _____
18. *U* _____

**Look at the coordinate grid above.**

19. If you travel 7 units down from *S*, at which point will you be located?

_____

20. If you travel 4 units right from *T* and 2 units down, at which point will you be located?

_____

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# Review 22 Extra Credit

Greatest Common Factor

You can find the *greatest common factor (GCF)* of 12 and 18 using a division ladder, factor trees, or by listing the factors. Two of these methods are shown.

Show work on seperate paper

① List the factors of 12 and 18.

12: 1, 2, 3, 4, 6, 12
18: 1, 2, 3, 6, 9, 18

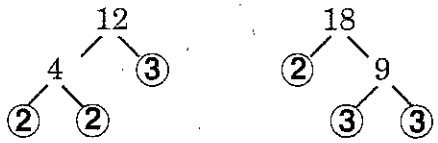
② Find the common factors.

12: ①,②,③, 4,⑥, 12
18: ①,②,③,⑥, 9, 18

The common factors are 1, 2, 3, and 6.

③ Name the greatest common factor: 6.

① Draw factor trees.




② Write each prime factorization. Identify common factors.

12: ② × 2 × ③
18: ② × ③ × 3

③ Multiply the common factors. $2 \times 3 = 6$. The GCF of 12 and 18 is 6.

---

**List the factors to find the GCF of each set of numbers.**

1. 10: _____
   15: _____
   GCF: _____

2. 14: _____
   21: _____
   GCF: _____

3. 9: _____
   21: _____
   GCF: _____

4. 12: _____
   13: _____
   GCF: _____

5. 15: _____
   25: _____
   GCF: _____

6. 15: _____
   18: _____
   GCF: _____

7. 36: _____
   48: _____
   GCF: _____

8. 24: _____
   30: _____
   GCF: _____

**Find the GCF of each set of numbers.**

9. 21, 60 _____
10. 15, 45 _____
11. 32, 40 _____
12. 54, 60 _____
13. 20, 50 _____
14. 21, 63 _____
15. 36, 40 _____
16. 48, 72 _____
17. 90, 150 _____

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# Review 47 Extra Credit

Understanding Proportions

Grade 6 Topics

A *proportion* is an equation stating that two ratios are equal.

Does $\frac{4}{10} = \frac{6}{15}$?

First, simplify each fraction.

$\frac{4}{10} = \frac{2}{5}$, and $\frac{6}{15} = \frac{2}{5}$.

So, $\frac{4}{10} = \frac{6}{15}$.

You can use mental math to solve proportions.

Use mental math to solve $\frac{3}{5} = \frac{15}{?}$.

$3 \times 5 = 15$, so $5 \times 5 = 25$

So, $\frac{3}{5} = \frac{15}{25}$.

Show work on seperate paper

**Do the ratios in each pair form a proportion?**

1. $\frac{25}{100}, \frac{4}{16}$ _____
2. $\frac{15}{20}, \frac{4}{5}$ _____
3. $\frac{35}{40}, \frac{45}{50}$ _____
4. $\frac{54}{9}, \frac{36}{6}$ _____
5. $\frac{7}{11}, \frac{49}{77}$ _____
6. $\frac{18}{24}, \frac{24}{30}$ _____
7. $\frac{3}{5}, \frac{5}{3}$ _____
8. $\frac{9}{10}, \frac{19}{20}$ _____
9. $\frac{8}{24}, \frac{1}{3}$ _____

**Find the value that completes each proportion.**

10. $\frac{6}{10} = \frac{3}{?}$ _____
11. $\frac{8}{16} = \frac{4}{?}$ _____
12. $\frac{9}{21} = \frac{?}{7}$ _____
13. $\frac{2}{?} = \frac{10}{50}$ _____
14. $\frac{11}{?} = \frac{33}{15}$ _____
15. $\frac{?}{25} = \frac{14}{50}$ _____
16. $\frac{6}{30} = \frac{?}{90}$ _____
17. $\frac{45}{9} = \frac{25}{?}$ _____
18. $\frac{18}{?} = \frac{2}{9}$ _____

19. A basketball player bounces the ball one time for every three steps. How many times will the player bounce the ball for twelve steps?

_____

20. Four laps around the track equals one mile. How many miles does sixteen laps equal?

_____