

# Middle School Math Summer Packet

The Common Core State Standards identify a limited number of topics at each grade level, allowing enough time for students to achieve fluency, if not mastery of these concepts. The subsequent year of study builds on the concepts of the previous year. Students are expected to have achieved fluency with the following:

- Multiplication and Division Facts
- Operations with Whole Numbers (+, -,  $\times$ ,  $\div$ )
- Operations with Decimals (+, -,  $\times$ ,  $\div$ )
- Operations with Fractions (+, -,  $\times$ ,  $\div$ )

Attached you will find some worksheets involving decimals and fractions as well other foundational skills needed to be successful in middle school math. In addition to this a doc will be sent that has IXL skills that can be practiced to assure readiness of your student(s). IXL will be used throughout the year as an enrichment to instruction. Please reach out should you have any questions or issues logging in.

# IXL Skills for Math Summer Work

Please complete linked skills for the respective grade that you are entering by achieving a score of AT Least 80 for each along with the summer packet that is given out. Contact the office if you need access to your IXL account.

## Grade 6

Decimal Rounding

Division

Decimal Division

Operations with Fractions and Mixed Numbers

Convert between Fractions Decimals and Percents

## Grade 7

Fractions

Distributive Property

Like Terms

Rates

Proportions

Equations

## Grade 8

Integers

Expressions

Two-Step Equations

Exponents

Percent Equations

Classify Numbers

Comparing Cost

Name: \_\_\_\_\_ Homework Decimals and +, -, ×, ÷ fractions

Answer the following. Show your work.

(1)  $8.94 + 26.9 + 5$

(10)  $5 + \frac{2}{3}$

(2)  $26 - 7.43$

(11)  $8\frac{7}{8} - 2\frac{2}{5}$

(3)  $5 - 0.5$

(12)  $6\frac{1}{2} - 4\frac{5}{6}$

(4)  $6.2 \times 0.37$

(13)  $9 - \frac{1}{12}$

(5)  $0.009 \times 0.003$

(14)  $\frac{21}{25} \times \frac{5}{12}$

(6)  $8.96 \div 1.6$

(15)  $7\frac{1}{2} \times 3\frac{1}{3}$

(7)  $55.8 \div 0.18$

(16)  $4\frac{1}{2} \div 2\frac{7}{10}$

(8)  $3 \div 0.015$

(17)  $6 + \frac{3}{4}$

(9)  $7\frac{3}{4} + 2\frac{6}{7}$

(18)  $3\frac{1}{3} \div \frac{4}{5}$

(19)  $\frac{7}{10} \div 1\frac{7}{8}$

(20)  $8\frac{3}{4} \div 3\frac{4}{7}$

Name: \_\_\_\_\_

## multiplying and dividing real numbers

Find each product. Simplify if necessary.

(8)  $-8(12)$       (9)  $8(12)$       (10)  $7(-9)$       (11)  $5 \cdot 4.1$

(12)  $-7 \cdot 1.1$       (13)  $10 \cdot (-2.5)$       (14)  $6\left(-\frac{1}{4}\right)$       (15)  $-\frac{1}{9}\left(-\frac{3}{4}\right)$

(16)  $-\frac{3}{7} \cdot -\frac{9}{10}$       (17)  $-\frac{2}{11}\left(-\frac{11}{2}\right)$       (18)  $\left(-\frac{2}{9}\right)^2$       (19)  $(-1.2)^2$

Find each quotient. Simplify if necessary.

(30)  $48 \div 3$       (31)  $-84 \div 14$       (32)  $-39 \div (-13)$       (33)  $\frac{63}{-21}$

(34)  $-46 \div (2)$       (35)  $-81 \div 9$       (36)  $\frac{-121}{11}$       (37)  $75 \div (-0.3)$

(40)  $20 \div \frac{1}{4}$       (41)  $-5 \div -\frac{5}{3}$       (42)  $\frac{9}{10} \div \left(-\frac{4}{5}\right)$       (43)  $-\frac{12}{13} \div \frac{12}{13}$

## worksheet

## Solving two step equations

Solve the following equations. Show steps. NOT JUST ANSWERS.

(1)  $6 + 3b = -18$

(9)  $16 - 3p = 34$

(2)  $-3 + 5x = 12$

(10)  $15 + \frac{a}{6} = -21$

(3)  $7n + 12 = -23$

(11)  $-19 + \frac{c}{3} = 8$

(4)  $\frac{k}{6} - 3 = 8$

(12)  $-18 - 11r = 26$

(5)  $-12 = 8 + \frac{f}{2}$

(13)  $-9 = \frac{y}{-3} - 6$

(6)  $13 = 8 - 5d$

(14)  $\frac{m-7}{2} = -11$

(7)  $\frac{k}{4} + 6 = -2$

(15)  $\frac{f}{4} = \frac{f}{4}h + 4$

(8)  $-22 = -8 + 7y$

(16)  $6.42 - 10d = 2.5$

Evaluate each expression for  $p = 5.5$  and  $w = -2$ 

(1)  $p + 4w$

(2)  $7w - 2p$

Simplify each expression. (combine like terms)

(3)  $-6.6x + 11 + 1.3 + 2x$

(4)  $5n + 3(n + 4) - 1$

(5)  $2(r + 5) - 2$

Use inverse operations to solve each equation. Show your steps.

(6)  $x - 8 = 44$

(8)  $\frac{n}{6} = -9$

(7)  $k - 14 = 29$

(9)  $12h = 60$

Solve each equation. Show your steps.

(10)  $2m - 21 = 3$

(12)  $8r + 6 = -34$

(14)  $9x - 8 = -44$

(11)  $-5y + 8 = 23$

(13)  $5t + 0.5 = -4.75$

(15)  $3p + 19 = -14$

# \* Solving Strategy Review Sheets \*

## Adding and Subtracting Decimals.

When adding decimals, line up the decimal points first.

Then add 0's to make the same amount of columns.

(ex) Find the sum of  $2.37 + 145.8 + 9.4$

<i>line up points</i>	<i>add zeros</i>	<i>add columns</i>
$\begin{array}{r} 2.37 \\ 145.8 \\ + 9.4 \\ \hline \end{array}$	$\begin{array}{r} 002.37 \\ 145.80 \\ + 009.40 \\ \hline \end{array}$	$\begin{array}{r} 002.37 \\ 145.80 \\ 009.40 \\ \hline 157.57 \end{array}$

When there is no point on the number, it is at the end of the number.

(ex) Find the sum of  $8.64 + 37.2 + 4$ , the point is at the end of the 4

<i>line up points</i>	<i>add zeros</i>	<i>add columns</i>
$\begin{array}{r} 8.64 \\ 37.2 \\ + 4. \\ \hline \end{array}$	$\begin{array}{r} 08.64 \\ 37.20 \\ + 04.00 \\ \hline \end{array}$	$\begin{array}{r} 08.64 \\ 37.20 \\ 04.00 \\ \hline 49.84 \end{array}$

(ex) Find the difference of  $212.3 - 8.75$

<i>line up points</i>	<i>add zeros</i>	<i>subtract columns</i>
$\begin{array}{r} 212.3 \\ - 8.75 \\ \hline \end{array}$	$\begin{array}{r} 212.30 \\ - 008.75 \\ \hline \end{array}$	$\begin{array}{r} 011 \text{ (2 10)} \\ 212.30 \\ - 008.75 \\ \hline 203.55 \end{array}$

When there is no point on the number, it is at the end of the number.

(ex) Find the difference of  $6 - 0.718$

<i>line up points</i>	<i>add zeros</i>
$\begin{array}{r} 6. \\ - 0.718 \\ \hline \end{array}$	$\begin{array}{r} 56.880 \\ - 0.718 \\ \hline 5.282 \end{array}$



### Dividing decimals.

The first number ALWAYS goes "in" the division box.

If there is no decimal point in the "outside" number, do not move the point "inside" the box.

If there is a decimal point in the "outside" number, move the point to the end of the number and move the point the same amount of places for the "inside" number.

(ex) Divide 18.4 by 8

$$\begin{array}{r}
 8 \overline{) 18.4} \\
 \underline{16} \phantom{0} \\
 24 \\
 \underline{24} \\
 0
 \end{array}$$

(ex) Divide 9.72 by 2.7

$$\begin{array}{r}
 2.7 \overline{) 9.72} \\
 \underline{5.4} \phantom{0} \\
 4.32 \\
 \underline{2.7} \phantom{0} \\
 1.62 \\
 \underline{1.62} \\
 0
 \end{array}$$

(ex) Divide 46.8 by 0.18

$$\begin{array}{r}
 0.18 \overline{) 46.8} \\
 0.18 \overline{) 46.80} \\
 18 \overline{) 4680} \\
 \underline{36} \phantom{00} \\
 108 \\
 \underline{108} \\
 0
 \end{array}$$

(ex) Divide 273 by 0.7

$$\begin{array}{r}
 0.7 \overline{) 273} \\
 0.7 \overline{) 273.0} \\
 7 \overline{) 2730} \\
 \underline{21} \phantom{00} \\
 63 \\
 \underline{63} \\
 0
 \end{array}$$

Divide 2 by 0.25

$$\begin{array}{r}
 0.25 \overline{) 2} \\
 0.25 \overline{) 2.00} \\
 25 \overline{) 200} \\
 \underline{200} \\
 0
 \end{array}$$





Sometimes you need to borrow in subtraction.

(ex)  $6\frac{1}{4} - 2\frac{3}{5}$  LCM is 20

$$\begin{array}{r} 5 \sqrt{6\frac{1 \cdot 5}{4 \cdot 5} = \frac{5}{20}} \text{ add} \\ - 2\frac{3 \cdot 4}{5 \cdot 4} = \frac{12}{20} \\ \hline 3\frac{13}{20} \end{array}$$

Can't subtract.  
Borrow 1 from the 6  
add the 20 and 5

(ex)  $9 - 6\frac{3}{8}$

$$\begin{array}{r} 8 \overline{) 9} \\ \underline{6\frac{3}{8}} \\ 2\frac{5}{8} \end{array}$$

Borrow from the 9  
Make the 1,  $\frac{8}{8}$

Multiplication of fractions.

Change the mixed numbers to improper fractions.

Then do any "cross reducing" of the fractions.

(ex)  $2\frac{6}{7} \times 2\frac{4}{5}$

$$4 \frac{20}{7} \times \frac{14}{5} = \frac{8}{1} = 8$$

(ex)  $2\frac{1}{10} \times 1\frac{1}{14}$

$$3 \frac{21}{10} \times \frac{15}{14} = \frac{9}{4} = 2\frac{1}{4}$$

$4 \overline{) 9} \frac{1}{4}$

(ex)  $8 \times 1\frac{1}{2}$

$$4 \frac{8}{1} \times \frac{3}{2} = \frac{12}{1} = 12$$

(ex)  $\frac{15}{16} \times 1\frac{13}{15}$

$$4 \frac{15}{16} \times \frac{28}{15} = \frac{7}{4} = 1\frac{3}{4}$$

$4 \overline{) 7} \frac{3}{4}$

