

## Grade 8 Curriculum 2019-2020

Concepts covered for the 8<sup>th</sup> grade.

### **Chapter 1: Real Numbers.**

- Rational and irrational numbers
- Squares and square roots
- Cubes and cube roots
- Pythagorean Theorem
- Coordinate Plane and Distance

### **Chapter 2: Solving Linear Equations.**

- Two step and multi step equations
- Types of solutions of linear equations

### **Chapter 3: Introduction to Functions.**

- Linear and Nonlinear Functions
- Graphs and functional relationships

### **Chapter 4: Graphing Functions.**

- Slope of linear equations
- Linear functions

### **Chapter 5: Systems of linear equations.**

- Solve by graphing
- Solve by substitution and elimination

### **Chapter 6: Exponents.**

- Scientific notation
- Multiply and Divide with exponents
- Multiply and Divide with scientific notation

### **Chapter 7: Introduction to Geometry.**

- Pairs of angles
- Parallel lines and angles
- Congruent figures
- Similar figures
- Angles and polygons

### **Chapter 8: Transformations.**

- Translations
- Reflections and symmetry
- Rotations
- Congruence
- Dilations
- Similarity

### **Chapter 9: Geometry and Measurement.**

- Solids
- Volume, prisms, cylinders
- Volume, pyramids, cones
- Spheres
- Exploring similar solids

### **Chapter 10: Data analysis**

- Analyzing scatter plots
- Modeling data with lines
- Two-way tables

The students should be strong in the following skills:

- Operations with decimals (+, -, ×, ÷)
- Operations with fractions (+, -, ×, ÷)
- operations with integers (+, -, ×, ÷)
- Solving one-step and two-step equations

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.

The Common Core State Standards for Grade 8 are algebra-focused. Students work with linear equations, functions and applications involving functions, and geometric concepts that include the Pythagorean Theorem and transformations.

Certain topics that have often been part of the Grade 8 curriculum are not included in the CCSS. In general, these topics are not included because students are expected to have achieved fluency with them in earlier grades. These topics include rational numbers and operations with rational numbers; operations with integers; solving equations; ratios, rates, and proportional relationships; properties and attributes of two-and-three dimensional space.

If a student needs more practice mastering the above skills, he/she should use the Khan Academy Program to improve those skills.

Mr. Hamel

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)  $6 \div \frac{3}{4}$

(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: \_\_\_\_\_ Integers and solving equations

Answer the following.

(1)  $-8 - 7 =$

(2)  $+6 - 9 =$

(3)  $-12 + 28 =$

(4)  $-3 - (+4) =$

(5)  $-26 - (-9) =$

(6)  $38 - (15) =$

(7)  $-8 \times -9 =$

(8)  $-24 \div 3 =$

(9)  $-4.6 + 2.9 =$

(10)  $-75 - 8.9 =$

(11)  $-3.6 \times -0.12 =$

(12)  $-2 \div 0.25 =$

(13)  $2\frac{1}{3} - 5\frac{4}{5} =$

(14)  $-7\frac{5}{7} - 2\frac{3}{4} =$

(15)  $-2\frac{6}{7} \times -2\frac{1}{10} =$

(16)  $-3\frac{1}{3} \div 1\frac{4}{21} =$

(1)  $4x - 8 = -28$

(2)  $-7x + 5 = -23$

(3)  $\frac{x}{-9} - 8 = -21$

(4)  $\frac{x}{6} + 15 = +9$

(5)  $-2x - 6 = 12$

(6)  $5x + 7 = -8$

(7)  $\frac{x}{7} - 12 = 4$

(8)  $\frac{x}{-6} + 8 = 4$

(9)  $-60 = -9x + 3$

(10)  $-22 = -6 + 2x$

(11)  $-12x + 5 = -79$

(12)  $-7x - 8 = 34$

(13)  $6x - 9 = -51$

(14)  $\frac{x}{-14} + 13 = -8$

(15)  $\frac{x}{8} - 19 = -24$

(16)  $8x + 19 = -21$

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)  $-\frac{12}{13} \div \frac{12}{13}$

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

### Adding and subtracting real numbers

Find each sum.

(18)  $11 + 9$

(19)  $17 + (-28)$

(20)  $12 + (-9)$

(21)  $-2 + 7$

(22)  $-14 + (-10)$

(23)  $-9 + (-2)$

(24)  $3.2 + 1.4$

(25)  $5.1 + (-0.7)$

(26)  $-2.2 + (-3.8)$

(27)  $\frac{1}{2} + \left(-\frac{7}{2}\right)$

(28)  $-\frac{2}{3} + \left(-\frac{3}{5}\right)$

(29)  $\frac{7}{9} + \left(-\frac{5}{12}\right)$

Find each difference.

(30)  $5 - 15$

(31)  $-13 - 7$

(32)  $-19 - 7$

(33)  $36 - (-12)$

(34)  $-29 - (-11)$

(35)  $-7 - (-5)$

(36)  $8.5 - 7.6$

(37)  $-2.5 - 17.8$

(38)  $-2.9 - (-7.5)$

(39)  $3.5 - 1.9$

(40)  $\frac{1}{8} - \frac{3}{4}$

(41)  $\frac{7}{16} - \left(-\frac{1}{2}\right)$

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)  $\frac{t}{6} - 3 = 8$

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

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

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

(6)  $13 = 8 - 5d$

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

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

(15)  $\frac{1}{4} = \frac{1}{4}h + 4$

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

(16)  $6.42 - 10d = 2.5$

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

(1)  $4x + 5 = 13$

(9)  $15 - 3t = -12$

(2)  $-8 + 3h = 1$

(10)  $13 + \frac{a}{11} = 7$

(3)  $2j - 13 = 25$

(11)  $\frac{f+4}{2} = 5$

(4)  $\frac{n}{5} - 1 = 7$

(12)  $\frac{p-6}{3} = -15$

(5)  $-5 = -8 + \frac{y}{10}$

(13)  $\frac{c+5}{-6} = -4$

(6)  $7 = -6m + 7$

(14)  $\frac{1}{4}z + 9 = -1$

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

(15)  $\frac{1}{2} = \frac{1}{2}t + 3$

(8)  $-14 = -6 + 4w$

(16)  $4.52 - 5h = 2.8$



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

multiplying and dividing real numbers

Use the distributive property to simplify each expression.

(9)  $6(a + 10)$

(10)  $8(4 + x)$

(11)  $(5 + w)5$

(12)  $(2t + 3)11$

(13)  $10(9 - t)$

(14)  $12(2j - 6)$

(15)  $16(7b + 6)$

(16)  $(1 + 3d)9$

(17)  $(3 - 8c)1.5$

(18)  $(5w - 15)2.1$

(19)  $\frac{1}{4}(4f - 8)$

(20)  $6\left(\frac{1}{3}h + 1\right)$

(21)  $(-8z - 10)(-1.5)$

(22)  $0(3.7x - 4.21)$

(23)  $1\left(\frac{3}{11} - \frac{7d}{17}\right)$

(24)  $\frac{1}{2}\left(\frac{1}{2}y - \frac{1}{2}\right)$

Write each expression as a sum or difference.

(25)  $\frac{2x + 7}{5}$

(26)  $\frac{17 + 5n}{4}$

(27)  $\frac{8 - 9x}{3}$

(28)  $\frac{4y - 12}{2}$

(29)  $\frac{25 - 8t}{5}$

(30)  $\frac{18x + 51}{17}$

(31)  $\frac{22 - 2n}{2}$

(32)  $\frac{42w + 14}{7}$

Simplify each expression.

(33)  $-(20 + d)$

(34)  $-(-5 - 4y)$

(35)  $-(9 - 7c)$

(36)  $-(-x + 15)$