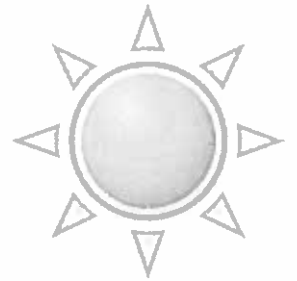


Name: _____

WOIS Math 7 go 8 summer assignment



Please spend at least 10 minutes a week doing math to keep the concepts/skills we learned this year fresh in your mind.



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Prodigy summer math class code: 09A5A8

THINGS YOU NEED TO KNOW ...

RATIONAL NUMBER OPERATIONS

- Adding
 - When the signs are the same, add the integers and keep the same sign.
 - When the signs are different, subtract the integers and keep the sign of the integer with the greatest absolute value.
- Subtracting
 - Keep the first number the same.
 - Change the subtraction sign to addition.
 - Change the second number to its opposite.
 - Follow the rules for addition.
- Multiplying and Dividing
 - Multiplying or dividing two integers with the SAME sign = positive product or quotient.
 - Multiplying or dividing two integers with DIFFERENT signs = negative product or quotient.

CONVERTING BETWEEN FRACTIONS AND DECIMALS





- Fractions to Decimals
 - Convert rational numbers to decimals using long division
 - The numerator becomes the dividend.
 - The denominator becomes the divisor.
 - Represent a repeating decimal by placing a line over the number(s) that repeat.
- Decimals to Fractions
 - Convert decimals to fractions using place value.
 - Write the decimal as a fraction based upon how you would say it. If the number extends to the tenths place, it will be a fraction with 10 as the denominator. If it extends to the hundredths place, it will be a fraction with 100 as the denominator, and so on.

THINGS YOU NEED TO KNOW ...

PROPERTIES OF MATHEMATICS

- Associative Property
 - $(a + b) + c = a + (b + c)$
 - $(a \cdot b) \cdot c = a \cdot (b \cdot c)$
- Distributive Property
 - $a \cdot (b + c) = a \cdot b + a \cdot c$
- Identity Property
 - $a + 0 = a$ and $a \cdot 1 = a$
- Inverse Property
 - $a + (-a) = 0$ and $a \cdot \frac{1}{a} = 1$

GRAPHING INEQUALITIES

- Greater than or equal to : 
- Less than or equal to : 
- Greater than : 
- Less than : 

FEEL

ANGLE RELATIONSHIPS

- Adjacent Angles: Angles that share a side.
- Complementary Angles: Angles that have a sum of 90° .
- Supplementary Angles: Angles that have a sum of 180° .
- Vertical Angles: Angles that share a vertex, but not a side.
- Parallel Lines: Two lines in a plane that never cross.
- Perpendicular Lines: Two lines in a plane that form a 90° angle at their intersection.

FORMULAS

- Area of circles: $A = \pi r^2$ Circumference of circles: $C = 2\pi r$ or $C = \pi d$
- Area of triangles: $\frac{1}{2}bh$ Area of trapezoids: $\frac{1}{2}(a+b)h$
- Volume of rectangular prisms: $l \cdot w \cdot h$ Volume of cylinders: $\pi r^2 h$
- Surface area: The sum of the area of each face of a figure.

Will be in 8th grade

PROPERTIES AND ORDER OF OPERATIONS

Identify the property: $4(0.25) = 1$	Identify the property: $(8 + 2) + 3 = 8 + (2 + 3)$	Identify the property: $12 + 3 + 4 = 4 + 3 + 12$
Identify the property: "The product of any number and one is the original number."	Identify the property: "When two or more numbers are multiplied, the product is the same regardless of the order of the factors."	Identify the property: "The sum of two numbers times a third number is equal to the sum of each addend times the third number."
Write an equivalent expression using the distributive property. $4(6 + 7) = \underline{\hspace{2cm}}$	Write an equivalent expression using the associative property of multiplication. $2(3 \cdot 5) = \underline{\hspace{2cm}}$	Fill in the blank to make the equation true. $6 \cdot \underline{\hspace{2cm}} = 6$
Fill in the blank to make the equation true. $\underline{\hspace{1cm}}(5 + 7) = (2 \cdot 5) + (2 \cdot 7)$	Simplify. $-4 + (-1 - 4) \cdot -6$	Simplify. $\{-4 - 4 - (-5)\} \cdot -3$
Simplify. $-5(5 - 1) + 2 \cdot 4$	Simplify. $10 \cdot 14 + 12 + 1 - 9$	Simplify. $((2 + 5) \cdot 3) \div (4 - 1)$

WRITING EXPRESSIONS AND EQUATIONS

Translate each phrase into an expression or equation.

<p>The sum of triple a number and nineteen.</p>	<p>Nine less than the quotient of twice a number and four.</p>	<p>Six more than a number cubed.</p>
<p>Four times the sum of three and a number.</p>	<p>Thirteen less than a number is fifty.</p>	<p>Twelve less than half a number is six.</p>
<p>Eighteen divided by a number squared is ten.</p>	<p>Three fifths of a number is fifteen.</p>	<p>Thirty divided by the sum of a number and three is twelve.</p>
<p>Manny has x baseball cards. Tim has four times as many baseball cards. Write an expression that represents how many baseball cards they have altogether.</p>		<p>Liam spent \$42 on 8 pounds of strawberries at \$$x$ per pound and a \$15 bouquet of flowers. Write an equation that can be used to find the cost of one pound of strawberries.</p>
<p>Nikolas had \$240 in the bank and bought 5 shirts for \$$y$ each. He has \$184 left in the bank. Write an equation that can be used to find out the cost of one shirt.</p>		<p>Jasmine sold 30 bracelets on Monday and 15 bracelets a day for the next few days. She sold a total of 105 bracelets. Write an equation that can be solved to determine the number of additional days she sold bracelets.</p>

EVALUATING EXPRESSIONS

Evaluate each expression for the given value(s) of the variable(s).

$a - (b - b)$; $a = 5$ and $b = 3$	$m + m - n$; $m = 2$ and $n = 2$	$6r + p$; $r = 7$ and $p = -2$
$m(p + m)$; $m = 6$ and $p = -1$	$y(9 - x + 5)$; $x = 5$ and $y = 10$	$m - \left(\frac{n}{2} - m\right)$; $m = -1$, $n = -10$
$y^2 + x^2$; $x = 8$ and $y = -3$	$n - \frac{m}{6} + m$; $m = -6$, $n = 9$	$c + (a - b)^3$; $a = -3$, $b = -5$, and $c = -10$
$a(a + b - b + a)$; $a = -3$ and $b = -2$	$p - (q + 6) - 7$; $p = -8$ and $q = -9$	$\frac{p}{2} - (pq + q)$; $p = -2$, $q = -1$
$(m + p)(10 - m^2)$; $m = -5$ and $p = 1$	$j - j + 10\left(\frac{h}{2}\right)$; $h = 10$, $j = 5$	$\frac{x}{4} + x - y $; $x = -8$, $y = -8$

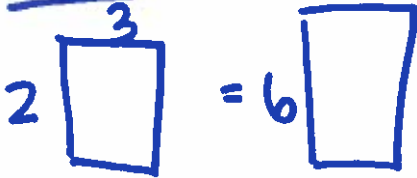
SOLVING EQUATIONS

Solve. $-8r = 240$	Solve. $-400 = -25n$	Solve. $-17 = \frac{m}{4}$
Solve. $-3 = \frac{-9+x}{4}$	Solve. $-2x + 10 = -14$	Solve. $1 + \frac{a}{16} = 0$
Solve. $-3n - 5n = 16$	Solve. $-182 = 7(4 - 6m)$	Solve. $5(6x - 8) = 190$
Larry and his friend split the dinner bill evenly. They each paid \$21.34. What was the cost of dinner?	A group of summer campers went on a trip. 22 campers rode in cars with their parents while the rest filled four buses. How many campers were on each bus if a total of 150 campers went on the trip?	
Miss Henry has 50 pencil erasers. She gave four to each student in her reading group. If she has two remaining, how many students are in her reading group?	Ashley spent $3x + 2$ hours on her science project and Adam spent $4x - 6$ hours on his science project. If they spent a total of 31 hours on their projects, find the value of x .	

$k = \frac{y}{x}$
 constant of proportionality

8th Grade Math Prep

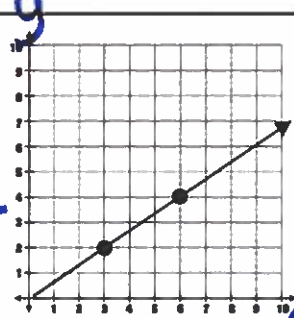
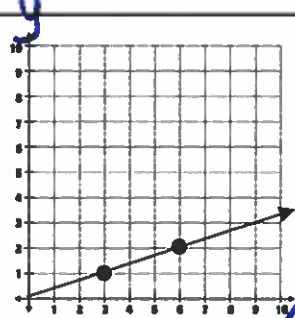
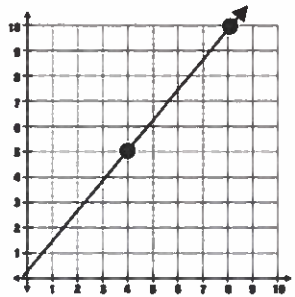
PROPORTIONAL RELATIONSHIPS

<p>Is the relationship proportional?</p> $\frac{7}{6} = \frac{12}{14}$ <p>12 ÷ 7 = 14 ÷ 6 =</p>	<p>Is the relationship proportional?</p> $\frac{3}{5} = \frac{7.5}{11.5}$ <p>7.5 ÷ 3 = 11.5 ÷ 5 =</p>	<p>Is the relationship proportional?</p> $\frac{7}{8} = \frac{10.5}{12}$ <p>10.5 ÷ 7 12 ÷ 8 =</p>																														
<p>Is the relationship proportional? Y</p> <table border="1"> <tr><td>x</td><td>1</td><td>2</td><td>4</td><td>8</td></tr> <tr><td>y</td><td>2</td><td>4</td><td>6</td><td>10</td></tr> </table>	x	1	2	4	8	y	2	4	6	10	<p>Is the relationship proportional? Y</p> <table border="1"> <tr><td>x</td><td>2</td><td>3</td><td>6</td><td>11</td></tr> <tr><td>y</td><td>1</td><td>1.5</td><td>3</td><td>5.5</td></tr> </table>	x	2	3	6	11	y	1	1.5	3	5.5	<p>Is the relationship proportional? Y</p> <table border="1"> <tr><td>x</td><td>5</td><td>6</td><td>7</td><td>8</td></tr> <tr><td>y</td><td>15</td><td>18</td><td>21</td><td>24</td></tr> </table>	x	5	6	7	8	y	15	18	21	24
x	1	2	4	8																												
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<p>Find the value of p.</p> $\frac{4}{p} = \frac{10}{3} \quad p = 1.2$ <p>10 ÷ 4 = 2.5 3 ÷ 2.5 = 1.2</p>	<p>Find the value of k.</p> $\frac{k}{9} = \frac{7}{6}$	<p>Find the value of x.</p> $\frac{4}{10} = \frac{9}{x}$																														
<p>A rectangle is 2 feet tall and 3 feet wide. If it is enlarged to have a height of 6 feet and maintains the same proportions, <u>what will the width be?</u></p> 	<p>Samuel purchased 8 DVDs for \$72. How much would he spend for <u>12 DVDs?</u> <u>How much is each DVD?</u></p>																															
<p>A recipe calls for 2 sticks of butter for every $\frac{1}{4}$ cup of brown sugar. How many sticks of butter are needed if 2.5 cups of brown sugar are used?</p>	<p>The number of blue fish to red fish in a tank is proportional. If there are 34 blue fish and 50 red fish in Tank A, how many blue fish are in Tank B if there are 75 red fish?</p>																															

Unit rate = comparison to 1.
(same thing as "k")

8th Grade Math Prep

CALCULATING UNIT RATE

<p>Find the unit rate.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"></td> <td style="width: 10%;">hours</td> <td style="width: 10%;">2</td> <td style="width: 10%;">3</td> <td style="width: 10%;">5</td> <td style="width: 10%;">6</td> <td style="width: 10%;">8</td> </tr> <tr> <td style="width: 10%; text-align: right;">x y</td> <td>miles</td> <td>80</td> <td>120</td> <td>200</td> <td>240</td> <td>320</td> </tr> </table> <p><u>miles</u> 1 hour</p>		hours	2	3	5	6	8	x y	miles	80	120	200	240	320	<p>Find the unit rate.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"></td> <td style="width: 10%;">lbs.</td> <td style="width: 10%;">2</td> <td style="width: 10%;">4</td> <td style="width: 10%;">9</td> <td style="width: 10%;">10</td> </tr> <tr> <td></td> <td>\$</td> <td>7</td> <td>14</td> <td>31.50</td> <td>35</td> </tr> </table> <p><u>\$</u> 1 lb</p>		lbs.	2	4	9	10		\$	7	14	31.50	35
	hours	2	3	5	6	8																					
x y	miles	80	120	200	240	320																					
	lbs.	2	4	9	10																						
	\$	7	14	31.50	35																						
<p>Find the unit rate. 6 rolls of paper towels for \$5.04</p>	<p>Find the unit rate. 48 minutes to walk 3 miles</p>	<p>Find the unit rate. 3.5 cups of sugar are needed for 2 dozen cookies.</p>																									
<p>Find the unit rate.</p>  <p>$k = \frac{y}{x}$ $k = \frac{2}{3} = .6$</p>	<p>Find the unit rate.</p>  <p>$k = \frac{y}{x}$ $k = \frac{1}{2} = .5$</p>	<p>Find the unit rate.</p> 																									
<p>A soccer league split 128 players evenly among 8 teams. How many players were on each team?</p>	<p>Dianne paid \$13.75 for 11 cups of coffee for her office. What was the cost of one cup of coffee?</p>																										
<p>A pizzeria bakes 6 dozen slices of pizza an hour. How many slices are baked each minute?</p>	<p>A rosebush grew 12 inches in June. What was the average growth per day?</p>																										