

Name: Key

Date: \_\_\_\_\_

Topic: \_\_\_\_\_

Class: \_\_\_\_\_

Main Ideas/Questions		Notes									
<h2 style="text-align: center;">Order of Operations</h2> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 10%;"><b>G</b></td> <td>Grouping Symbols ( ), [ ], { }, and fraction bars</td> </tr> <tr> <td style="text-align: center;"><b>E</b></td> <td>Exponents (and Roots)</td> </tr> <tr> <td style="text-align: center;"><b>MD</b></td> <td>Multiplication &amp; Division (left → right)</td> </tr> <tr> <td style="text-align: center;"><b>AS</b></td> <td>Addition &amp; Subtraction (left → right)</td> </tr> </table>		<b>G</b>	Grouping Symbols ( ), [ ], { }, and fraction bars	<b>E</b>	Exponents (and Roots)	<b>MD</b>	Multiplication & Division (left → right)	<b>AS</b>	Addition & Subtraction (left → right)	<p><b>Directions:</b> Simplify each expression.</p>	
		<b>G</b>	Grouping Symbols ( ), [ ], { }, and fraction bars								
		<b>E</b>	Exponents (and Roots)								
		<b>MD</b>	Multiplication & Division (left → right)								
<b>AS</b>	Addition & Subtraction (left → right)										
		<p>1. <math>29 - (11 - 2^3) + 6^2 \div 4</math></p> $29 - (11 - 8) + 36 \div 4$ $29 - 3 + 9$ $26 + 9$ $= \boxed{35}$	<p>2. <math>4^3 -  -8  \cdot 6 \div 16</math></p> $64 - 8 \cdot 6 \div 16$ $64 - 48 \div 16$ $64 - 3$ $= \boxed{61}$								
		<p>3. <math>\frac{7 - (10 - 12 + 5^2)}{9 - 2^2}</math></p> $\frac{7 - (1 - 2 + 25)}{9 - 4}$ $\frac{7 - 21}{5}$ $\frac{-20}{5} = \boxed{-4}$	<p>4. <math>\frac{(2 - 3^2)^2 + \sqrt{81}}{10 - 6 \div 3}</math></p> $\frac{(2 - 9)^2 + 9}{10 - 2}$ $\frac{49 + 9}{8}$ $\frac{58}{8} = \boxed{\frac{29}{4}}$								
		<p>5. <math>\frac{[15 - (-6 + 2 + \sqrt{9})]^2}{3 - 3^3}</math></p> $\frac{[15 - (1 - 4 + 3)]^2}{3 - 27}$ $\frac{[15 - 0]^2}{-24} = \frac{64}{-24} = \boxed{-\frac{8}{3}}$	<p>6. <math>\frac{(9 - 15)^2 \cdot (7 - 2^2)}{\sqrt{49} + 5} -  -5 </math></p> $\frac{(-6)^2 \cdot (7 - 4)}{7 + 5} - 5$ $\frac{36 \cdot 3}{12} - 5$ $\frac{108}{12} - 5 = 9 - 5 = \boxed{4}$								
<h2 style="text-align: center;">Evaluating Expressions</h2>		<p><b>Directions:</b> Evaluate each expression given the variable replacements.</p>									
		<p>7. <math>\frac{a \cdot b^2}{c + 12}</math> (if <math>a = 3</math>, <math>b = -4</math>, and <math>c = 8</math>)</p> $\frac{(3)(-4)^2}{8 + 12}$ $\frac{3(16)}{20} = \frac{48}{20} = \boxed{\frac{12}{5}}$	<p>8. <math> 10m - 8n^2 </math> (if <math>m = 2</math> and <math>n = -3</math>)</p> $ 10(2) - 8(-3)^2 $ $ 20 - 8(9) $ $ 20 - 72 $ $ -52  = \boxed{52}$								

	<p>9. <math>-x^2 + 7(y+2) - 1</math> (if <math>x = 5</math> and <math>y = -9</math>)</p> $-(5)^2 + 7(-9+2) - 1$ $-25 + 7(-7) - 1$ $-25 - 49 - 1$ $-74 - 1$ $\boxed{-75}$	<p>10. <math>3r - 4s</math> (if <math>r = 5</math> and <math>s = \frac{2}{3}</math>)</p> $3(5) - 4\left(\frac{2}{3}\right)$ $15 - \frac{8}{3}$ $\boxed{\frac{37}{3}}$
	<p>11. <math> x^2 - y^2  - x \cdot y</math> (if <math>x = -6</math> and <math>y = 8</math>)</p> $ (-6)^2 - (8)^2  - (-6) \cdot (8)$ $ 36 - 64  - (-48)$ $28 + 48$ $\boxed{76}$	<p>12. <math>\frac{2}{5}(a+2b)^2</math> (if <math>a = 3</math> and <math>b = -4</math>)</p> $\frac{2}{5}(3 + 2(-4))^2$ $\frac{2}{5}(3 - 8)^2$ $\frac{2}{5}(25)$ $\boxed{10}$
	<p>13. <math>\frac{w^3 - 4v}{\sqrt{wv}}</math> (if <math>w = 2</math> and <math>v = 18</math>)</p> $\frac{(2)^3 - 4(18)}{\sqrt{2 \cdot 18}}$ $\frac{8 - 72}{\sqrt{36}} = \frac{-64}{6} = \boxed{\frac{-32}{3}}$	<p>14. <math>2m^2 + 9m</math> (if <math>m = \frac{1}{4}</math>)</p> $2\left(\frac{1}{4}\right)^2 + 9\left(\frac{1}{4}\right)$ $2\left(\frac{1}{16}\right) + \frac{9}{4}$ $\frac{2}{16} + \frac{9}{4}$ $\boxed{\frac{19}{8}}$
<h2 style="text-align: center;">Simplifying Expressions</h2>	<p><b>Directions:</b> Simply each expression below by distributing and/or combining like terms.</p>	
	<p>15. <math>\underline{16x} - \underline{11} - \underline{7x} + \underline{10}</math></p> $\boxed{9x - 1}$	<p>16. <math>13 + 2(3n - 7) + 19n</math></p> $\underline{13} + \underline{6n} - \underline{14} + \underline{19n}$ $\boxed{25n - 1}$
	<p>17. <math>6(c - 2) - (8c + 1)</math></p> $\underline{6c} - \underline{12} - \underline{8c} - \underline{1}$ $\boxed{-2c - 13}$	<p>18. <math>\underline{-15y} - \underline{7z} + \underline{y} + \underline{9z}</math></p> $\boxed{-14y + 2z}$
	<p>19. <math>3(3a - 5b) - (a - 7b)</math></p> $\underline{9a} - \underline{15b} - \underline{a} + \underline{7b}$ $\boxed{8a - 8b}$	<p>20. <math>-8(2x + y) - 3(-5x - 2y)</math></p> $\underline{-16x} - \underline{8y} + \underline{15x} + \underline{6y}$ $\boxed{-x - 2y}$