Algebra 1 – Unit 1 Study Packet

Verbal and Algebraic Expressions and Equations

Skill #1 – Verbal to Algebraic		
1) The sum of x and nine	2) A number g less than 14	3) The quotient of 36 and a number k
4) Four times the difference of a number j and ten	5) Three times the quantity of seven plus twice a number h	6) The product of 16 and a number y increased by eight is 152
7) Each candy bar (c) costs $1.75.	8) She is 8 more than 3 times his age (a)	9) The product of 5 and the cube root of a number p

Skill #1 　　□ I can translate verbal expressions and equations into algebraic symbols.
　　　　　　□ Need more practice (IXL – I.1, I.4)

Skill #2 – Algebraic to Verbal		
1) $\frac{12}{x} + 7$	2) $4(t - 9)$	3) $5\sqrt[3]{r}$
4) $\sqrt{2x}$	5) $4y^3 + 10$	6) $\frac{1}{4}(2w + 3x)$

7) Match the following:

$\dfrac{\sqrt{y}}{2}$	The square root of the product of two and y
$\sqrt{2y}$	The product of two and the cube root of y
$\sqrt[3]{2y}$	The quotient of the square root of y and 2
$2\sqrt[3]{y}$	The cube root of the product of two and y

Skill #2 　　□ I can translate algebraic symbols into verbal expressions and equations.
　　　　　　□ Need more practice (IXL – I.1, I.4)

Skill #3 – Order of Operations	
1) $\frac{3}{4} \cdot (4^2 + -2^3)$	2) $\sqrt[3]{-64} + |10^2|$

3) $\sqrt{16} - (2 \div 1^4) + \sqrt{100} + 9$

Skill #3   □ I can solve expressions using order of operations, which include absolute value, square
              roots, and cube roots
        □ Need more practice (IXL - I.7)

Skill #4 – Replacement Variables	
1) What is the value of $$\frac{5y - 6z}{4z}$$ if $y = 1 \, and \, z = -5$?	2) What is the value of $$t^2 - 9z$$ if $t = -2 \, and \, z = -1$?

3) The expression below has a value of 10.
$$\sqrt{m} - n$$

Identify each correct replacement set:

m = 64 and n = -2	m = 100 and n = 1	m= 169 and n = -3	m = 225 and n = 5

Skill #4   □ I can solve expressions using order of operations, which include absolute value, square
              roots, and cube roots for given <u>replacement values for variables</u>.
        □ Need more practice (IXL – B.3, B.7, GG.8)

Radical Expressions

1) $\sqrt{96}$	2) $\sqrt{216}$	3) $\sqrt{405}$

4) What coefficient would be placed in the box shown?

$$\sqrt{12} = \square\sqrt{3}$$

a) 1
b) 2
c) 3
d) 4

Skill #5   □ Express the square root of a whole number in simplest form.
                  □ Need more practice (IXL – EE.1)

Skill #6 - Simplifying Radicals with Variables

1) $\sqrt{45p^2}$	2) $\sqrt{28m^2n^3}$	3) $\sqrt{r^4s^5}$

Skill #6   □ Express the principal square root of a monomial algebraic expression in simplest form
                  where variables are assumed to have positive values.
                  □ Need more practice (IXL – EE.2)

Skill #7 - Simplifying Cube Roots	
1) $\sqrt[3]{1080}$	2) What coefficient will be placed in the box? $$\sqrt[3]{540} = \square\sqrt[3]{20}$$
3) $\sqrt[3]{1372k^4p^5}$	4) What coefficient will be placed in the box? $$\sqrt[3]{1512} = \square\sqrt[3]{7}$$

Skill #7   □ Express the cube root of an integer in simplest form.
                □ Need more practice (IXL – A.7)

Skill #8 – Add, Subtract, and Multiply Radical Expressions		
1) $\sqrt{14} \cdot \sqrt{21}$	2) $2\sqrt{10} \cdot \sqrt{6}$	3) $\sqrt[3]{9} \cdot \sqrt[3]{15}$
4) $-2\sqrt{11} + 2\sqrt{44}$	5) $5\sqrt{24} - \sqrt{150}$	6) $\sqrt{12} + 2\sqrt{27}$

Skill #8   □ Add, subtract, and multiply two monomial radical expressions limited to a numerical
                radicand.
                □ Need more practice (IXL – EE.4, EE.5)