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

**Algebra Common Core: Unit 1 Review**

**The Real Number System**

I can classify numbers as either rational or irrational.

see Quiz 1: problems 2 and 5

***Examples:***

|  |  |
| --- | --- |
| 1.  | 2.  |

**Variables and Expressions**

I can distinguish the difference between an algebraic expression, equation, and inequality.

I know and can use the Order of Operations to evaluate expressions.

see Quiz 1: problems 3 and 4

***Examples:***

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  3. An example of an algebraic expression is

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

 | 4. What is the value of the expression $\left(a^{3}+b^{0}\right)^{2}$ when$$a=-2 and b=-3$$ | 5. What is the value of$$x^{2}\left(2x-3\right)-3\left(x-1\right) if x=-2?$$ |

**The Properties of Real Numbers**

I can identify and apply the properties of real numbers, including the Commutative Property, Associative Property, and Distributive Property to write equivalent expressions.

see Quiz 1: problems 1, 6, and 9

**Equivalent Expressions**

I can apply the distributive property and combine like terms to find equivalent expressions.

see Quiz 1: problems 7 and 8

see Quiz 2: problem 2

***Examples:***

|  |  |  |
| --- | --- | --- |
| 6. Which expression is equivalent to the following:$$-2(8-5x)$$(1) $ 10x+16$(2)$ -16-5x$(3)$ -16-10x$(4)$ 10x-16$ | 7. Using the properties of real numbers, write the following expression as a binomial in simplest form:$$\frac{-2\left(8x+3\right)+2}{4}+6$$ | 8. Write the following in simplest form:$$2x^{2}\left(x+3\right)-5x\left(2x+3\right)+4(x-8)$$ |

**Exponents as Repeated Multiplication**

I understand that exponents are repeated multiplication and can use this definition, or Exponent Rule #1, to write equivalent expressions for the product of two or more monomials.

Exponent Rule #1: $x^{a}∙x^{b}=x^{a+b}$ Exponent Rule #2: $\left(x^{a}\right)^{b}=x^{a∙b}$ \*\*use with caution!!

see Quiz 2: problems 4, 5 and 6

***Examples:***

|  |  |
| --- | --- |
| 9. What is the product of$2x^{4}y^{3}and-7xy^{2}$ ? | 10. Express in simplest form:$$\left(4a^{3}b^{2}\right)\left(3a^{2}b\right)^{2}(b^{5})$$ |

**More Complex Equivalency**

I can apply the distributive property twice (“double distribute”) to multiply binomials and combine like terms to find equivalent expressions.

see Quiz 2: problems 1, 7 and 8

***Examples:***

|  |  |
| --- | --- |
| 11. Simplify:$$\left(3x+6\right)\left(4-2x\right)+5x^{2}-8$$ | 12. Expand and simplify:$$\left(2x^{2}+3y^{2}\right)^{2}$$ |

**Translating English to Algebra**

I can translate a verbal phrase into an algebraic expression.

key words: sum, more than, greater than, difference, less than, product, times, times greater than, twice, double, triple, quotient, ratio

see Quiz 2: problems 3 and 9

***Examples:***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  13. Which algebraic expression represents 15 less than *x* divided by 9?

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

 |  14. Tim ate four more cookies than Alice. Bob ate twice as many cookies as Tim. If *x* represents the number of cookies Alice ate, which expression represents the number of cookies Bob ate?

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

 |  15. A correct translation of “six less than twice the value of *x*” is

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

 |

**Word Problems**

* perimeter and area of rectangles and triangles, consecutive integers

see Quiz 3: problem 3

***Examples:***

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  16. The width of a rectangle is 3 less than twice the length, *x.* If the area of the rectangle is 43 square feet, which equation can be used to find the length, in feet?

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

 |  17. What is the perimeter of a regular pentagon with a side whose length is ?

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

  |  18. If *n* is an odd integer, which equation can be used to find three consecutive odd integers whose sum is ?

|  |  |
| --- | --- |
| 1) |  |
| 2) |  |
| 3) |  |
| 4) |  |

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