Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Expressions and Equations Study Guide**

***Two-Step Equations: Solve for the variable and check your answer. # 1-6***

|  |  |  |
| --- | --- | --- |
| 1. 2n – 3 = 15
 | 1. $\frac{n}{4}$ – 7 = 28
 | 1. -13a + 32 = 84
 |
| 1. -8k + 15 = 71
 |  5. -2(4x -7) + 5x = 17 | 6. Ted, Laura, and Sam went on a bird watching trip to a national park. If Ted identified a total of 6 birds, Laura identified 2 times the number of birds Ted did, and Sam identified 4 fewer birds than Laura, how many birds did Sam identify? |
| 7. Translate the sentence into an expression*: ten more than the quotient of a number and 4* | 8. Translate the sentence into an expression: *4 less than the product 7 and a number* | 9. Jeremy works on computers and charges $14 per hour plus a one-time service fee of $5. If Jeremy worked on a computer for 2 ½ hours, how much should he charge the customer? |

***Combining Like Terms: Simplify the expression by combining like terms. Use Distributive Property if needed to help simplify.***

|  |  |
| --- | --- |
| 1. 7x + 20x + 7x – 9x
 | 1. -4(3x + 6y) + 12x + 4y
 |
| 1. – (x – 8y) – (x + 9y)
 | 1. 5x – 3$x^{2}$ +2xy + 31x – 18xy
 |

***Factoring: Find the GCF for the expression. Remember factoring is like doing the distributive property backwards.***

|  |  |
| --- | --- |
| 1. 3a – 3b
 | 1. 4 x – 2z
 |
| 1. 6m – 2mn
 | 1. 7ab – 3a
 |

***Inequalities: Solve for the unknown and graph answer for #18-20.***

|  |  |
| --- | --- |
| 1. 3x + 1 ≤ 10
 | Graph problem #18: http://www.mathematic.ws/wp-content/uploads/2009/04/number-line.png |
| 1. 4x + 7 ≤ 15
 | Graph problem #19:http://www.mathematic.ws/wp-content/uploads/2009/04/number-line.png |
| 1. 6y + 7 < -11
 | Graph problem #20:http://www.mathematic.ws/wp-content/uploads/2009/04/number-line.png |
| 1. What is the first step in solving for *x* in the equation below:

 7x – 5 = 37 | 1. Asia’s age is 4 years less than three times his younger sister’s age. Write an equation that represents *a*, Asia’s age in terms of *s*, his sister’s age.
 |
| 1. Which is one value of *x* that makes this inequality true?

 $\frac{-3}{4}$x > 61. -9 c. 8
2. -8 d. 9
 | 1. Calvin had 93 video games to give away at an auction. At the end of the day, he had 9 games left. Which equation could be used to find g, the number of games he gave away?
2. g + 93 = 9 c. 9g = 93
3. 93 – g = 9 d. 9 ÷ g = 93
 |
| 1. Simplify the expression:

( 4$x^{3}$ + 2$x^{2}$ + 4x -7 ) – ( $x^{3}$ - 2$x^{2}$ – x – 2 )  |  Identify the property:1. (-7 + 8) + 6 = -7 + (8 +6)
2. 23 + 0 = 23

  |