Math 2: Unit 1 REVIEW \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is going to do AWESOME on this test!

I. Solve the following equations. Show all your work.

1. 5(x + 3) = 45 2. 6w – 2w = 24 3. –x + (-8) = 20

4. $\frac{m}{-7}$ = -2 5. 6 = 12 + 3(m + 3) 6. 2(x + 4) + 8x – 7 = 10x – 2(2x – 5)

7. 6x – 4 – 2x + 10 = 8 – x + 7 + 3x 8. -5(x – 3) + 11 = 3 – 4(2x + 3)

II. Simplify the following polynomials.

9. (2x + 3) + (5x – 24) 10. (-5 + 8x) – (12x – 7)

11. (6x2 – 17x + 8) + (-3x2 – 5 + 10x) 12. (9x3 + 2x – 1) – (5x2 + 3x – 13)

13. (-6x2 – 3x3 + 4) + (-7x3 + 2x + 4) – (2x3 + 9x2 – 18)

14. (3x2 + 9)(x2 – 3) 15. (x2 – 4x + 7)(x + 3)

16. (2x2 – 4)2

III. Variations.

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| 17. Suppose y varies jointly as x and z. Find y when x=5 and z=10, if y=100 when x = 8 and z =3. | 18. If y varies inversely as the square of x if x=8 when y=4, what is y when x=3? |
| 19. If y varies directly as x and x=15 when y=5, find x when y=4. | \*20. Y varies directly as x AND inversely as the square root of z. If y=6 when x=2 and z=4. Find y when x=1 and z=9. |
| 21. If y varies inversely as x and y =12 when x=10, find y when x=20. |  |

IV. Investigations. Show all work.

22. The weight of a body on or above Earth’s surface varies inversely as the square of its distance from Earth’s center. Earth’s radius is about 5,000 miles. If an astronaut weighs 180 pounds on Earth’s surface, how much will he weigh in orbit 24,000 miles above Earth’s surface?

23. In a classroom in Gastonia, the number of boys varies directly as the number of girls. There are 8 boys and 5 girls in this classroom. If this same relationship exists in another classroom where there are 4 girls, how many boys are in this room?

2x - 1

24. Write an equation and solve for x if the area of the rectangle is 45 square units.

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25. The sum of the measures of the three angles of a triangle is 180°. Find the measure of the angle labeled x.

x + 9°

x°

2x -1°