Name: _____ Date: _____Block_____

Module 2 Test Study Guide

A. Number Properties and Algebraic Expressions

Simplify the following expressions:

1. $7b - 3b + 4$

2. $9x + x - 4x + x$

3. $6a - 3a - a - 12$

4. $-3(25x)$

5. $8(y - 4)$

6. $-8(3y + 5) - 5$

7. $8x + 4(x - 1)$

8. $7(x + 5)$

9. $4(3 + 9) + 10a - 4a$

10. $(21 \div 7)(4a + a) - 12$

Write algebraic expressions for the following:

11. Add one-half to 5 times c

12. One-fourth of b is added to 9

13. 7 is subtracted from two-fifths of y

14. 9 less than 4 times q

15. One-fourth of the sum of 6 and f

16. Four-fifths of q is subtracted from 6

Name the number property indicated below:

17. 34 + 27 = 27 + 34

18. 48 + (73 + 16) = (48 + 73) + 16

19. 18 x (22 x 49) = (18 x 22) x 49

20. 66 x 37 = 37 x 66

21. 7+2+3=2+3+7

22. (6 x 5) x 2 = 6 x (5 x 2)

23. 7 x 8 x 4 = 8 x 4 x 7

24. 6 + (9 + 12) = (6 + 9) + 12

B. Exponent Properties

I. Use the properties of exponents to simplify the following expressions.

1. $\left(x^3y^4\right)\left(x^2y^5\right)$

6. $\frac{x^{2y}}{x^y}$

2. $\left(x^2y\right)^3$

7. $\frac{3x^3y^8}{81x^4y^5}$

3. $\left(x^6y^2z^{15}\right)^0$

8. $\left(2^x\right)\left(2^x\right)$

4. $\left(x^7\right)^y$

5. $\left(x^{2y}\right)\left(x^{3y}\right)$

9. $2^x + 2^x$

10. $\dfrac{3^x + 3^x}{3^x}$

II. Simplify the expression. Leave answers written in exponential form.

1. $3^4 \cdot 3^6$

2. $x^3 \cdot x^8$

3. $\left(5^4\right)^3$

4. $\left(y^2\right)^7$

5. $(3b)^2\left(2b^3\right)^4$

6. $r^4\left(4r^2s^2\right)^3$

III. Evaluate the expression.

7. 47^0

8. $(128xyz)^0$

9. 5^{-2}

12. $(-2)^{-4}$

13. $\left(\dfrac{1}{2}\right)^{-1}$

14. $\dfrac{1}{9^{-1}}$

IV. Simplifying Expressions: Rewrite the expression with positive exponents.

15. m^5n^{-5}

16. $\dfrac{13}{x^{-4}}$

17. $\dfrac{x^{-5}}{y^{-2}}$

18. $(2y)^{-5}$

V. Simplify the quotient and expressions

19. $\dfrac{7^4}{7^5}$

20. $\dfrac{m^6}{m^3}$

21. $\left(\dfrac{2}{3}\right)^3$

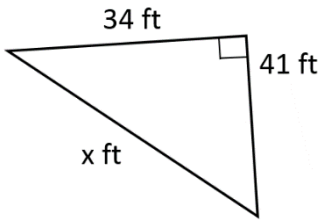
22. $\left(\dfrac{c}{6}\right)^{-2}$

23. $\frac{4x^3}{2xy} \bullet \frac{5xy^2}{2y}$

24. $\left(\frac{2a^4b^5}{5a^2b}\right)^3$

C. Pythagorean Theorem

1. Find the missing side



2. A ladder is 13 ft long leaning against the wall. The bottom is 5 ft from the wall. What is the height of the wall? (HINT: DRAW A PICTURE)

3. Tanya runs diagonally across a rectangular field that has a length of 40 yards and a width of 30 yards. What is the length of the diagonal, in yards, that Tanya runs?