**Math 90   Ch. 5 Practice**                                    Name_____

1.  Simplify:  $(-3)^3$          2.  Simplify:  $\left(\dfrac{2}{3}\right)^2$          3.  Simplify:  $(3x^3y)^2(3xy^2)^3$

4.  Simplify:  $w^{-2}$          5.  Simplify, write answer with positive exponents: $(4x^4y)^0$

6.  Subtract $(5y^2 - 2y + 3) - (6y^2 + 2y - 8)$

7.  Simplify and write in scientific notation:  $\dfrac{(4\times10^{-5})(1\times10^{-6})}{3\times10^{-12}}$

8.  Simplify, write answer with positive exponents:  $\left(\dfrac{x^{-6}y^3}{x^{-3}y^{-4}}\right)^{-1}$

9.  Write 0.00112 in scientific notation.          10.   Write $2.63\times10^4$ in expanded form.

11.  Simplify, write answer with positive exponents: $\dfrac{8x^6yz^2}{24x^3y^7}$

12.  Simplify, write answer with positive exponents: $\dfrac{14b^7}{7b} - \dfrac{30b^{12}}{3b^6}$

13. Find the value of $3x^2 - 2x + 4$ when x is –3.

14. Multiply:  $5x^4y(7x^2 + 3xy - 4y^2)$          15.   Multiply:  $(2x + 3)(x^2 - 4x + 2)$

16.  Multiply:  $\left(4x+\dfrac{1}{3}\right)\left(3x-\dfrac{1}{4}\right)$          17.   Multiply:  $(2x - 5y)(3x - 2y)$

18.  Multiply:  $(2y + 1)(3y^2 - 5y - 3)$          19.   By formula:  $(a + 5)^2$

20.  By formula:  $(x^2 + 2)(x^2 - 2)$          21.   Simplify: $(3y + 2)^2 - (3y - 2)^2$

22.  Divide: $8x^4 + 16x^3 - 12x^2$ by $4x^2$

23.  Divide:  $\dfrac{6x^3 - 7x^2 - 11x + 12}{2x - 3}$          24.   Divide:  $\dfrac{5x^2 - 2x + 4}{x + 3}$

25.  Multiply:  $(x^6 - 4)(x^8 + 4)$          26.   By formula:  $(8a^2 + 3)^2$

27.  $(2a^3b^{-1})^{-4}$          28.   $\dfrac{ab}{c}^{-3}$

## ANSWERS

**1.** –27          **2.** $\dfrac{4}{9}$          **3.** $243x^9y^8$          **4.** $\dfrac{1}{w^2}$          **5.** 1          **6.** $-y^2 - 4y + 11$

**7.** $4.9 * 10^2$          **8.** $\dfrac{x^3}{y^7}$          **9.** $1.12 * 10^{-3}$          **10.** 26,300          **11.** $\dfrac{x^3z^2}{3y^6}$

**12.** $-8b^6$          **13.** 37          **14.** $35x^6y + 15x^5y^2 - 20x^4y^3$          **15.** $2x^3 - 5x^2 - 8x + 6$

**16.** $12x^2 - \dfrac{1}{12}$          **17.** $6x^2 - 19xy + 10y^2$          **18.** $6y^3 - 7y^2 - 11y - 3$          **19.** $a^2 + 10a + 25$

**20.** $x^4 - 4$          **21.** 24y          **22.** $2x^2 + 4x - 3$          **23.** $3x^2 + x - 4$

**24.** $5x - 17 + \dfrac{55}{x+3}$          **25.** $x^{14} - 4x^8 + 4x^6 - 16$          **26.** $64a^4 + 48a^2 + 9$

**27.** $\dfrac{b^4}{16a^{12}}$          **28.** $\dfrac{c^3}{a^3b^3}$