

**Ch. 4 Practice  
Math 90**

**Name** \_\_\_\_\_  
**Date** \_\_\_\_\_

1. Simplify:  $(-3)^3$
2. Simplify:  $\left(\frac{2}{3}\right)^2$
3. Simplify:  $(3x^3y)^2(3xy^2)^3$
4. Simplify:  $5^{-2}$
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:  $\frac{(7 \times 10^{-5})(21 \times 10^{-6})}{3 \times 10^{-12}}$
8. Simplify, write answer with positive exponents:  $\left(\frac{x^{-6}y^3}{x^{-3}y^{-4}}\right)^{-1}$
9. Write 0.00112 in scientific notation.
10. Write  $2.63 \times 10^4$  in expanded form.
11. Simplify, write answer with positive exponents:  $\frac{8x^6yz^2}{24x^3y^7}$
12. Simplify, write answer with positive exponents:  $\frac{14b^7}{7b} - \frac{30b^{12}}{3b^6}$
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:  $\left(4x + \frac{1}{3}\right)\left(3x - \frac{1}{4}\right)$
17. Multiply:  $(2x - 5y)(3x - 2y)$
18. Multiply:  $(y - 3)(y^2 + 3y + 9)$
19. Multiply:  $(a + 5)^2$
20. Multiply:  $(x^2 + 2)(x^2 - 2)$
21. Simplify:  $(3y + 2)^2 - (3y - 2)^2$
22. Divide:  $8x^4 + 16x^3 - 12x^2$  by  $4x^2$
23. Divide:  $\frac{6x^3 - 7x^2 - 11x + 12}{2x - 3}$
24. Divide:  $\frac{5x^2 - 2x + 4}{x + 3}$
25. Find the volume of a cube if the length of a side is 3.5 cm.
26. A box freezer has inside measurements of length 4.5 ft., width 4 ft., depth 3 ft. What is the volume?

**ANSWERS**

1.  $-27$
2.  $\frac{4}{9}$
3.  $243x^9y^8$
4.  $\frac{1}{25}$
5.  $1$
6.  $-y^2 - 4y + 11$
7.  $4.9 \times 10^2$
8.  $\frac{x^3}{y^7}$
9.  $1.12 \times 10^{-3}$
10.  $26,300$
11.  $\frac{x^3z^2}{3y^6}$
12.  $-8b^6$
13.  $37$
14.  $35x^6y + 15x^5y^2 - 20x^4y^3$
15.  $2x^3 - 5x^2 - 8x + 6$
16.  $12x^2 - \frac{1}{12}$
17.  $6x^2 - 19xy + 10y^2$
18.  $y^3 - 27$
19.  $a^2 + 10a + 25$
20.  $x^4 - 4$
21.  $24y$
22.  $2x^2 + 4x - 3$
23.  $3x^2 + x - 4$
24.  $5x - 17 + \frac{55}{x + 3}$
25.  $42.875 \text{ cm}^3$
26.  $54 \text{ ft}^3$