

In exercises 1 - 13 odd, simplify each algebraic expression, or explain why the expression cannot be simplified.

1) 9^2

3) 4^3

5) $(-4)^2$

7) $(-4)^3$

9) $(-5)^4$

11) -5^4

13) -10^2

In exercises 15 - 27 odd, simplify each algebraic expression, or explain why the expression cannot be simplified.

15) $7x^2 + 12x^2$

17) $10x^3 + 5x^3$

19) $8x^4 + x^4$

21) $26x^2 - 27x^2$

23) $27x^3 - 26x^3$

25) $5x^2 + 5x^3$

27) $16x^2 - 16x^2$

In exercises 29 - 71 odd, use the order of operations to simplify each expression.

29) $7 + 6 \cdot 3$

$$31) 45 \div 5 \cdot 3$$

$$33) 6 \cdot 8 \div 4$$

$$35) 14 - 2 \cdot 6 + 3$$

$$37) 8^2 - 16 \div 2^2 \cdot 4 - 3$$

$$39) 3(-2)^2 - 4(-3)^2$$

$$41) (4 \cdot 5)^2 - 4 \cdot 5^2$$

$$43) (2 - 6)^2 - (3 - 7)^2$$

$$45) 6(3 - 5)^3 - 2(1 - 3)^3$$

$$47) [2(6 - 2)]^2$$

$$49) 2[5 + 2(9 - 4)]$$

$$51) [7 + 3(2^3 - 1)] \div 21$$

$$53) \frac{10+8}{5^2-4^2}$$

$$55) \frac{37+15 \div (-3)}{2^4}$$

$$57) \frac{(-11)(-4)+2(-7)}{7-(-3)}$$

$$59) 4|10 - (8 - 20)|$$

$$61) 8(-10) + |4(-5)|$$

$$63) -2^2 + 4[16 \div (3 - 5)]$$

$$65) 24 \div \frac{3^2}{8-5} - (-6)$$

$$67) \frac{\frac{1}{4} - \frac{1}{2}}{\frac{1}{3}}$$

$$69) -\frac{9}{4} \left(\frac{1}{2}\right) + \frac{3}{4} \div \frac{5}{6}$$

$$71) \frac{\frac{7}{9} - 3}{\frac{5}{6}} \div \frac{3}{2} + \frac{3}{4}$$

In exercises 73 - 79 odd, evaluate each algebraic expression for the given value of the variable.

$$73) x^2 + 5x; x = 3$$

$$75) 3x^2 - 8x; x = -2$$

$$77) -x^2 - 10x; x = -1$$

79) $\frac{6y-4y^2}{y^2-15}; y = 5$

In exercises 81 - 87 odd, simplify each algebraic expression by removing parentheses and brackets.

81) $3[5(x - 2) + 1]$

83) $3[6 - (y + 1)]$

85) $7 - 4[3 - (4y - 5)]$

87) $2(3x^2 - 5) - [4(2x^2 - 1) + 3]$

In exercises 89 and 91, express each sentence as a single numerical expression. Then, use the order of operations to simplify the expression.

89) Cube -2. Subtract this exponential expression from -10.

91) Subtract 10 from 7. Multiply this difference by 2. Square this product.

The line graphs shown on page 94 (top right) show the percentage of people who used the Internet for four selected years, by level of education. You will need to use these for problem 99.

- 99) a. Use the appropriate line graph to estimate the percentage of people at the college plus level of education who used the Internet in 2005.

- b. The mathematical model

$$C = 0.006n^2 + 3.3n + 75$$

describes the percentage of people in the college plus group, C , who used the Internet n years after 2000. Use the formula to find the percentage of people at this education level who used the Internet in 2005. How does this value compare to your estimate in part (a)?