

Name _____

Date _____

Additional Exercises 1.8
Form I
Exponents and Order of Operations

Evaluate each exponential expression.

1. 8^2 1. _____

2. $(-8)^2$ 2. _____

3. -8^2 3. _____

Simplify each algebraic expression, if possible.

4. $5x^2 + 11x^2$ 4. _____

5. $8x^4 + 2x^4$ 5. _____

6. $14x^3 - x^3$ 6. _____

Evaluate each algebraic expression for the given value of the variable.

7. $x^2 - x$ for $x = 3$ 7. _____

8. $2x^3 + x^2$ for $x = -1$ 8. _____

9. $5x^3 - x$ for $x = -2$ 9. _____

10. $x^4 - 2x^2 + x$ for $x = 2$ 10. _____

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Use the order of operations to simplify each expression.

11. $4 + 2 \cdot 6$ 11. _____

12. $3 \cdot 5 + 2 \cdot 6$ 12. _____

13. $-6(12 \div 2 \cdot 3) - 6^2$ 13. _____

14. $4(-3)^2 - 3(-4)^2$ 14. _____

15. $(6 - 10)^2 - (3^2 - 5)^2$ 15. _____

16. $5(4 - 8)^2 - 2(1 - 4)^2$ 16. _____

17. $3[4(5 - 7)^2] \div (-2)^3$ 17. _____

18. $\frac{10 + 8 \div 2}{2^3 - 1}$ 18. _____

19. $\frac{5^2 + 20 \div 2(2)}{3^2}$ 19. _____

Simplify by removing parentheses and brackets.

20. $7[3(x - 4) - 1]$ 20. _____

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Additional Exercises 1.8
Form II
Exponents and Order of Operations

Evaluate each exponential expression.

1. -9^2 1. _____

2. $(-9)^2$ 2. _____

3. -7^3 3. _____

Simplify each algebraic expression, if possible.

4. $24x^3 - 12x^3$ 4. _____

5. $15x^2 + x^2$ 5. _____

6. $10x^4 - 9x^3$ 6. _____

Evaluate each algebraic expression for the given value of the variable.

7. $3x^3 - 4$ for $x = -2$ 7. _____

8. $-5x^2 + 9x$ for $x = 4$ 8. _____

9. $-x^3 - x^2 - x$ for $x = -1$ 9. _____

10. $2x^4 - x^3 + x^2$ for $x = -3$ 10. _____

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Use the order of operations to simplify each expression.

11. $5 \cdot 8 + 6 \cdot 4$ 11. _____

12. $-7(24 \div 6 \cdot 2) - 5^2$ 12. _____

13. $5(3)^2 - 4(-2)^3$ 13. _____

14. $(5 - 12)^2 - (10 \div -2)^2$ 14. _____

15. $6(9 - 5)^2 + 4(12 \cdot 6 \div 3)$ 15. _____

16. $-6 [3(8 - 12)^2 - (4 - 18 \div 3)]$ 16. _____

17. $\frac{-18 \div 2 \cdot 3}{5^2 - 4^2}$ 17. _____

18. $\left[-\frac{3}{5} - \frac{3}{10}\right] \cdot \left[\frac{4}{5} \div \frac{2}{15}\right] + \frac{2}{5}$ 18. _____

Simplify by removing parentheses and brackets.

19. $-3(2x - 10) - 4x + 6$ 19. _____

20. $4 [4(x + 4) + 5]$ 20. _____

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Additional Exercises 1.8
Form III
Exponents and Order of Operations

Evaluate each exponential expression.

1. $(-11)^2$ 1. _____

2. -14^2 2. _____

3. -8^3 3. _____

Simplify each algebraic expression, if possible.

4. $5x^3 - 2x^2$ 4. _____

5. $x^3 + 4x^3$ 5. _____

6. $9x^2 - x^2 - 3x^2$ 6. _____

Evaluate each algebraic expression for the given value of the variable.

7. $-x^2 - 5x$ for $x = -3$ 7. _____

8. $3x^3 + x^2 - x$ for $x = -2$ 8. _____

9. $\frac{x^2 + 5x}{-x + x^2}$ for $x = 4$ 9. _____

10. $-5(x + 3) + 2x^2 - (x + 4)$ for $x = -1$ 10. _____

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Use the order of operations to simplify each expression.

11. $(-2)(4)^3 - (-20)(-5)$ 11. _____

12. $-4[16 - (4 - 6)^2] \div [24 \div 4 \cdot 2]$ 12. _____

13. $(-4 - 8)(-5 + 4) - 4^4$ 13. _____

14. $10 - 6[4^3 - 48 \div 4] + 4^4$ 14. _____

15. $\frac{6(8 - 4) + 6(3)}{7(1 - 4)}$ 15. _____

16. $\frac{14 + 18 \div 6(2)}{-3^2 - 1}$ 16. _____

Simplify by removing parentheses and brackets.

17. $4 - 5[3(3x - 4)]$ 17. _____

18. $15 \div 3[4(3x - 4) - 5x]$ 18. _____

19. As the relative humidity increases, the temperature seems higher than it really is. The model $T = 0.114x + 59.63$ approximates the apparent temperature of 65°F , where x is the relative humidity. What is the apparent temperature (to the nearest degree) for a humidity of 70%? 19. _____

20. The winning times (in seconds) in a speed skating event for men can be represented by the model $T = 46.39 - 0.093x$, where x represents the year, with $x = 0$ corresponding to 1920. (For example, $1992 - 1920 = 72$.) What would the winning time be in 1997 according to the model? Round your answer to the nearest hundredth. 20. _____