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

19. $\dfrac{5^2 + 20 \div 2(2)}{3^2}$ 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. $\dfrac{-18 \div 2 \cdot 3}{5^2 - 4^2}$ 17. _____

18. $\left[-\dfrac{3}{5} - \dfrac{3}{10}\right] \cdot \left[\dfrac{4}{5} \div \dfrac{2}{15}\right] + \dfrac{2}{5}$ 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. $\dfrac{x^2 + 5x}{-x + x^2}$ 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. $\left[-\frac{3}{8}-\frac{1}{4}\right]\left[-\frac{2}{3}-\left(-\frac{3}{5}\right)\right]$ 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. $15+3[4(3x+4)-5x]$ 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 2010 according to the model? 20. _____

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Additional Exercises 2.1
Form I
The Addition Property of Equality

Identify the following equations in one variable as linear or not linear.

1. $x + 7 = 5$ 1. _____

2. $x^2 + 4 = 7$ 2. _____

3. $\frac{11}{x} = 5$ 3. _____

4. $|x + 4| = 8$ 4. _____

Solve the equation using the addition property of equality.

5. $a - 21 = -9$ 5. _____

6. $x + 17 = 28$ 6. _____

7. $4 = b - 9$ 7. _____

8. $t - 8 = 15$ 8. _____

9. $x + \frac{2}{6} = \frac{2}{6}$ 9. _____

10. $x + 0.7 = 1.5$ 10. _____

11. $8 = -14 + x$ 11. _____

12. $-31 = x - 14$ 12. _____

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13. $-14.5 = 12.2 + x$ 13. _____

14. $13 + 6p = 7p$ 14. _____

15. $8y = 7y - 8.8$ 15. _____

Solve.

16. The cost of having a car towed is given by the formula $C = 3x + 65$, where C is in dollars and x is the number of miles the car is towed. Find the cost of having a car towed 3 miles. 16. _____

17. The formula $C = 537x + 165$ models the cost to produce x units of product, where C is given in dollars. Find the total cost if 100 units are produced. 17. _____

18. The monthly cost of a certain long distance service is given by the formula $C = 0.07t + 4.95$ where C is in dollars and t is the amount of time in minutes called in a month. Find the cost of calling long distance for 100 minutes a month. 18. _____

19. The amount of water in a leaky bucket is given by the formula $f = 115 - 7t$, where f is in ounces and t is in minutes. Find the amount of water in the bucket after 5 minutes. 19. _____

20. The altitude above sea level of an airplane just after taking off from an airport on a high plateau is given by the formula $h = 700t + 2882$, where h is in feet and t is the time in minutes since takeoff. Find the altitude of the airplane after 3 minutes. 20. _____

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