Name _____ Date_____ Class _____

LESSON 1-1

Practice B

Numbers and Patterns

Identify a possible pattern. Use the pattern to write the next three numbers.

1. 41, 37, 33, 29, ____, ____, ____, ...

_____

_____

2. 50, 52, 56, 62, ____, ____, ____, ...

_____

_____

3. 320, 160, 80, 40, ____, ____, ____, ...

_____

_____

4. 24, 40, 56, 72, ____, ____, ____, ...

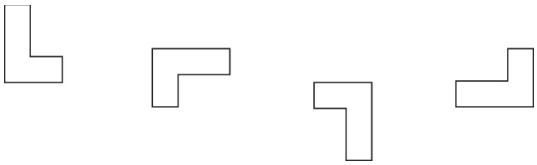
_____

_____

Identify a possible pattern. Use the pattern to draw the next three figures.

5. 

_____

6. 

_____

7. Complete the table so that it shows the number of dots in each figure.

Figure	1	2	3
Number of Dots			

How many dots are in the fifth figure of the pattern? ____

Use drawings to justify your answer.

Name _____ Date _____ Class _____

LESSON 1-2

Practice B

Exponents

Find each value.

1. 5^2 _____
2. 2^4 _____
3. 3^3 _____
4. 7^2 _____
5. 4^4 _____
6. 12^2 _____
7. 10^3 _____
8. 11^1 _____
9. 1^6 _____
10. 20^2 _____
11. 6^3 _____
12. 7^3 _____

Write each number using an exponent and the given base.

13. 16, base 4 _____
14. 25, base 25 _____
15. 100, base 10 _____
16. 125, base 5 _____
17. 32, base 2 _____
18. 243, base 3 _____
19. 900, base 30 _____
20. 121, base 11 _____
21. 3,600, base 60 _____
22. 256, base 4 _____
23. 512, base 8 _____
24. 196, base 14 _____

25. Damon has 4 times as many stamps as Julia. Julia has 4 times as many stamps as Claire. Claire has 4 stamps. Write the number of stamps Damon has in both exponential form and standard form.

_____

26. Holly starts a jump rope exercise program. She jumps rope for 3 minutes the first week. In the second week, she triples the time she jumps. In the third week, she triples the time of the second week, and in the fourth week, she triples the time of the third week. How many minutes does she jump rope during the fourth week?

_____

Name _____ Date _____ Class _____

LESSON 1-3

Practice B

Scientific Notation

Multiply.

1. $6 \cdot 10^3$ _____
2. $22 \cdot 10^1$ _____
3. $8 \cdot 10^2$ _____
4. $18 \cdot 10^0$ _____
5. $70 \cdot 10^2$ _____
6. $25 \cdot 10^3$ _____
7. $3 \cdot 10^4$ _____
8. $180 \cdot 10^3$ _____
9. $84 \cdot 10^4$ _____
10. $315 \cdot 10^2$ _____
11. $210 \cdot 10^3$ _____
12. $1{,}004 \cdot 10^3$ _____
13. $1{,}764 \cdot 10^1$ _____
14. $856 \cdot 10^0$ _____
15. $4{,}055 \cdot 10^3$ _____
16. $716 \cdot 10^4$ _____

Write each number in scientific notation.

17. 34,000 _____
18. 7,700 _____
19. 2,100,000 _____
20. 404,000 _____
21. 21,000,000 _____
22. 612.00 _____
23. 3,001,000 _____
24. $62.13 \cdot 10^4$ _____

25. Lake Superior covers an area of about 31,700 square miles. Write this number in scientific notation.

_____

26. Mars is about $1.42 \cdot 10^8$ miles from the sun. Write this number in standard form.

_____

27. In 2005, the population of China was about $1.306 \cdot 10^9$. What was the population of China written in standard form?

_____

28. A scientist estimates there are 4,800,000 bacteria in a test tube. How does she record the number using scientific notation?

_____

Name _____ Date _____ Class _____

LESSON 1-4

Practice B

Order of Operations

Simplify each expression.

1. $15 \cdot 3 + 12 \cdot 2$ _____
2. $212 + 21 \div 3$ _____
3. $9 \cdot 3 - 18 \div 3$ _____
4. $65 - 36 \div 3$ _____
5. $100 - 9^2 + 2$ _____
6. $3 \cdot 5 - 45 \div 3^2$ _____
7. $54 \div 6 + 4 \cdot 6$ _____
8. $(6 + 5) \cdot 16 \div 2$ _____
9. $60 - 8 \cdot 12 \div 3$ _____
10. $45 - 3^2 \cdot 5$ _____
11. $52 - (8 \cdot 2 \div 4) + 3^2$ _____
12. $(2^3 + 10 \div 2) \cdot 3$ _____
13. $25 + 7(18 - 4^2)$ _____
14. $(6 \cdot 3 - 12)^2 \div 9 + 7$ _____
15. $4^3 - (3 + 12 \cdot 2 - 9)$ _____
16. $2^4 \div 8 + 5$ _____
17. $(1 + 2)^2 \cdot (3 - 1)^2 \div 2$ _____
18. $(16 \div 4) + 4 \cdot (2^2 - 2)$ _____
19. $2^5 - (3 \cdot 7 - 7)$ _____
20. $75 + 5^2 - (8 - 3)$ _____
21. $9 \cdot 6 - 5(10 - 3)$ _____
22. $96 \div 4 + 5 \cdot 2^2$ _____
23. $(15 - 6)^2 \div 3 - 3^3$ _____
24. $19 - 8 \cdot 5 \div 10 + 6 \div 3$ _____

25. Jared has $32. He buys 5 packs of trading cards that cost $3 each and a display book that costs $7. Simplify the expression $32 - (5 \cdot 3 + 7)$ to find out how much money Jared has left.

_____

26. David buys 3 movie tickets for $6 each and 2 bags of popcorn for $2 each. Simplify the expression $3 \cdot 6 + 2 \cdot 2$ to find out how much money David spent in all.

_____

Name _____ Date _____ Class _____

LESSON 1-5

Practice B

Properties of Numbers

Tell which property is represented.

1. $12 \cdot 14 = 14 \cdot 12$

   _____

2. $1 \cdot 36 = 36$

   _____

3. $(17 + 36) + 4 = 17 + (36 + 4)$

   _____

4. $8 \cdot 12 \cdot 5 = 8 \cdot (12 \cdot 5)$

   _____

Simplify each expression. Justify each step.

5. $4 \cdot 9 \cdot 50$

   $4 \cdot 9 \cdot 50 =$ _____

   $=$ _____

   $=$ _____

   $=$ _____

6. $(33 + 45) + 7$

   $(33 + 45) + 7 =$ _____

   $=$ _____

   $=$ _____

   $=$ _____

Use the Distributive Property to find each product.

7. $3(26) =$ _____

   $=$ _____

   $=$ _____

   $=$ _____

8. $(18)9 =$ _____

   $=$ _____

   $=$ _____

   $=$ _____

Name _____ Date _____ Class _____

LESSON 1-6

Practice B

Variables and Algebraic Expressions

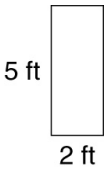
Evaluate $n - 5$ for each value of n.

1. $n = 8$ _____
2. $n = 121$ _____
3. $n = 32$ _____
4. $n = 59$ _____

Evaluate each expression for the given values of the variable.

5. $3n + 15$ for $n = 4$ _____
6. $h \div 12$ for $h = 60$ _____
7. $32x - 32$ for $x = 2$ _____
8. $\frac{c}{2}$ for $c = 24$ _____
9. $(n \div 2)5$ for $n = 14$ _____
10. $8p + 148$ for $p = 15$ _____
11. $e^2 - 7$ for $e = 8$ _____
12. $3d^2 + d$ for $d = 5$ _____
13. $40 - 4k^3$ for $k = 2$ _____
14. $2y - z$ for $y = 21$ and $z = 19$ _____
15. $3h^2 + 8m$ for $h = 3$ and $m = 2$ _____
16. $18 \div a + b \div 9$ for $a = 6$ and $b = 45$ _____
17. $10x - 4y$ for $x = 14$ and $y = 5$ _____

18. You can find the area of a rectangle with the expression lw where l represents the length and w represents the width. What is the area of the rectangle at right in square feet?



_____

19. Rita drove an average of 55 mi/h on her trip to the mountains. You can use the expression $55h$ to find out how many miles she drove in h hours. If she drove for 5 hours, how many miles did she drive?

_____

Name _____ Date _____ Class _____

LESSON 1-7

Practice B

Translating Words Into Math

Write each phrase as an algebraic expression.

1. 125 decreased by a number

   _____

2. 359 more than z

   _____

3. the product of a number and 35

   _____

4. the quotient of 100 and w

   _____

5. twice a number, plus 27

   _____

6. 12 less than 15 times x

   _____

7. the product of e and 4, divided by 12

   _____

8. y less than 18 times 6

   _____

9. 48 more than the quotient of a number and 64 _____

10. 500 less than the product of 4 and a number _____

11. the quotient of p and 4, decreased by 320 _____

12. 13 multiplied by the amount 60 minus w _____

13. the quotient of 45 and the sum of c and 17 _____

14. twice the sum of a number and 600 _____

15. There are twice as many flute players as there are trumpet players in the band. If there are n flute players, write an algebraic expression to find out how many trumpet players there are. _____

16. The Nile River is the longest river in the world at 4,160 miles. A group of explorers traveled along the entire Nile in x days. They traveled the same distance each day. Write an algebraic expression to find each day's distance. _____

17. A slice of pizza has 290 calories, and a stalk of celery has 5 calories. Write an algebraic expression to find out how many calories there are in a slices of pizza and b stalks of celery. _____

18. Grant pays 10¢ per minute plus $5 per month for telephone long distance. Write an algebraic expression for m minutes of long-distance calls in one month. _____

Name _____ Date _____ Class _____

LESSON 1-8

Practice B

Simplifying Algebraic Expressions

Identify like terms in each list.

1. $3a \quad b^2 \quad b^3 \quad 4b^2 \quad 4 \quad 5a$

_____

2. $x \quad x^4 \quad 4x \quad 4x^2 \quad 4x^4 \quad 3x^2$

_____

3. $6m \quad 6m^2 \quad n^2 \quad 2n \quad 2 \quad 4m \quad 5n$

_____

4. $12s \quad 7s^4 \quad 9s \quad s^2 \quad 5 \quad 5s^4 \quad 2$

_____

Simplify. Justify your steps using the Commutative, Associative, and Distributive Properties when necessary.

5. $2p + 22q^2 - p$

_____

6. $x^2 + 3x^2 - 4^2$

_____

7. $n^4 + n^3 + 3n - n - n^3$

_____

8. $4a + 4b + 2 - 2a + 5b - 1$

_____

9. $32m^2 + 14n^2 - 12m^2 + 5n - 3$

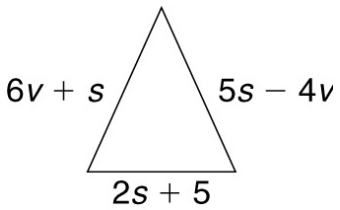
_____

10. $2h^2 + 3g - 2h^2 + 2^2 - 3 + 4g$

_____

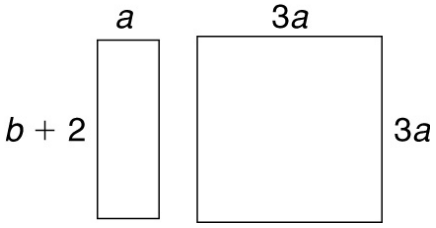
11. Write an expression for the perimeter of the figure at the right. Then simplify the expression.

_____



12. Write an expression for the combined perimeters of the figures at the right. Then simplify the expression.

_____



Name _____ Date _____ Class _____

LESSON 1-9

Practice B

Equations and Their Solutions

Determine whether the given value of the variable is a solution.

1. $a = 4$ for $12 - a = 6$ _____
2. $m = 37$ for $23 + m = 60$ _____
3. $x = 6$ for $54 = 9x$ _____
4. $g = 96$ for $\frac{g}{4} = 32$ _____
5. $n = 28$ for $n + 44 = 72$ _____
6. $j = 6$ for $84 \div j = 12$ _____
7. $k = 24$ for $3k = 6$ _____
8. $m = 3$ for $42 = m + 39$ _____
9. $y = 8$ for $8y + 6 = 70$ _____
10. $s = 5$ for $18 = 3s - 3$ _____
11. $k = 7$ for $23 - k = 30$ _____
12. $v = 12$ for $84 = 7v$ _____
13. $c = 15$ for $45 - 2c = 15$ _____
14. $x = 10$ for $x + 25 - 2x + 4 = 19$ _____
15. $e = 6$ for $42 = 51 - e$ _____
16. $p = 15$ for $19 = p - 4$ _____

17. Jason and Maya have their own web sites on the Internet. As of last week, Jason's web site had 2,426 visitors. This is twice as many visitors as Maya had. Did Maya have 1,213 visitors or 4,852 visitors to her web site?

    _____

18. Which problem situation best matches the equation $3c - 5 = 31$?

    Situation A: Rachel had a coupon for $5 off the cost of her order. She ordered 3 large pizzas that each cost the same amount and paid a total of $31. What was the cost of each pizza?

    Situation B: Rachel had a coupon for $31 off the cost of her order. She ordered 5 large pizzas that each cost the same amount and paid a total of $3. What was the cost of each pizza?

    _____

Name _____ Date _____ Class _____

LESSON 1-10

Practice B

Solving Equations by Adding or Subtracting

Solve each equation. Check your answer.

1. $33 = y - 44$ _____
2. $r - 32 = 77$ _____
3. $125 = x - 29$ _____
4. $k + 18 = 25$ _____
5. $589 + x = 700$ _____
6. $96 = 56 + t$ _____
7. $a - 9 = 57$ _____
8. $b - 49 = 254$ _____
9. $987 = f - 11$ _____
10. $32 + d = 1{,}400$ _____
11. $w - 24 = 90$ _____
12. $95 = g - 340$ _____
13. $e - 35 = 59$ _____
14. $84 = v + 30$ _____
15. $h + 15 = 81$ _____
16. $110 = a + 25$ _____
17. $45 + c = 91$ _____
18. $p - 29 = 78$ _____
19. $56 - r = 8$ _____
20. $39 = z + 8$ _____
21. $93 + g = 117$ _____

22. The Morales family is driving from Philadelphia to Boston. So far, they have driven 167 miles. This is 129 miles less than the total distance they must travel. How many miles is Philadelphia from Boston?

_____

23. Ron has $1,230 in his savings account. This is $400 more than he needs to buy a new big screen TV. Write and solve an equation to find out how much the TV costs.

_____

Name _____ Date _____ Class _____

LESSON 1-11

Practice B

Solving Equations by Multiplying or Dividing

Solve each equation. Check your answer.

1. $68 = \frac{r}{4}$ _____
2. $k \div 24 = 85$ _____
3. $255 = \frac{x}{4}$ _____
4. $42 = w \div 18$ _____
5. $\frac{a}{15} = 22$ _____
6. $82 = b \div 5$ _____
7. $\frac{c}{7} = 9$ _____
8. $28 = z \div 3$ _____
9. $\frac{y}{12} = 10$ _____

Solve each equation. Check your answer.

10. $52w = 364$ _____
11. $41x = 492$ _____
12. $410 = 82p$ _____
13. $35d = 735$ _____
14. $195 = 65h$ _____
15. $4k = 140$ _____
16. $110 = 5e$ _____
17. $27a = 216$ _____
18. $96 = 12n$ _____

19. Ashley earns $5.50 per hour babysitting. She wants to buy a CD player that costs $71.50, including tax. How many hours will she need to work to earn the money for the CD player?

_____

20. A cat can jump the height of up to 5 times the length of its tail. How high can a cat jump if its tail is 13 inches long?

_____