UVA

Name:_____ Date: _____

Ms. Napolitano Activity 2.1

Topic: Prime Factorization

EQ: How do you write the prime factorization of a number?

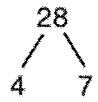
**I can** write the prime factorization of a number. **I can** distinguish between a prime and composite number.

CCSS: 6.NS.1

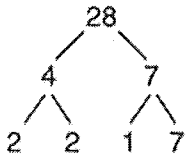
# Classwork:

**Use exponents to write the prime factorization of 28.**

**Step 1** Write 28 as the product of 2 factors.




**Step 2** Write the factors of each composite factor.




**Step 3** Use exponents to write the prime factorization.

**Solution:** $28 = 2^2 \times 7$

**Write the prime factorization of each number. Use exponents if possible. If the number is prime, write *prime*.**

**1.** 32

**2.** 31

**3.** 49

**4.** 39

**5.** 40

**6.** 81

**Write each expression using exponents.**

**7.** $6 \times 6 \times 6$

**8.** $5 \times 5 \times 5 \times 5$

**9.** $9 \times 9 \times 9$

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**Use a factor tree to find the prime factorization.** **(put answer in exponential form)**

1) 20

2) 54

3) 72

4) 100

5) 70

6) 24

7) 77

8) 120

9) 3,000

10) 450

11) 81

12) 36

13) 18

14) 200

15) 144

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Chapter 1 Review Sheet

1. What is the prime factorization of the number 60?

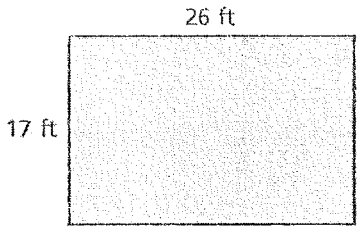
A. $3 \cdot 4 \cdot 5$

B. $2 \cdot 3 \cdot 5$

C. $2^2 \cdot 3 \cdot 5$

D. $2 \cdot 3^2 \cdot 5$

2. What is the area of the rectangle below?




F. 136 $ft^2$

G. 208 $ft^2$

H. 402 $ft^2$

I. 442 $ft^2$

3. A northbound bus and a southbound bus are at a bus stop at the same time. The northbound bus returns to the bus stop every 20 minutes and the southbound bus returns to the bus stop every 25 minutes. How long will it be before both buses are the bus stop at the same time again?

A. 50 minutes

B. 100 minutes

C. 200 minutes

D. 500 minutes

4. Which operation should you perform first when you evaluate the following expression?

$$15 - 8 \div (4 - 2) \times 3$$

F. Subtract 8 from 15.

G. Divide 8 by 4.

H. Subtract 2 from 4.

I. Multiply 2 by 3.

5. What is the greatest number that divides evenly into both 42 and 81?

A. 1

B. 3

C. 6

D. 9

6. The town administrators separate the 84 houses in a neighborhood into equal groups to do safety inspections. Which of the following groupings is not possible?

F. Three groups of 26 houses

G. Four groups of 21 houses

H. Six groups of 14 houses

I. Seven groups of 12 houses

7. Which of the following numbers is a perfect square?

A. 35

B. 68

C. 125

D. 144

8. The sum of 28 and 42 can be expressed in two different ways using the distributive property.

$28 + 42 = \square(2 + 3) = 7(4 + \square)$

Which numbers complete the equation?

A. 7 and 1

B. 7 and 3

C. 12 and 6

D. 14 and 6

9. The combination to a safe has 3 numbers. The first number is the greatest common factor of 16 and 40. The second number is the greatest common factor of 25 and 75. The third number is the greatest common factor of 27 and 36. What is the combination to the safe?

A. 2, 25, 6

B. 4, 5, 6

C. 8, 5, 9

D. 8, 25, 9

**10.** An expression is shown.

$$12 \cdot 12 \cdot 12 \cdot 12 + 7\,(3 \cdot 3 \cdot 3 \cdot 3 + 3)$$

Which of the following shows this expression written using exponents?

A. $4^{12} + 7(5^3)$

B. $4^{12} + 7(4^3 + 3)$

C. $12^4 + 7(3^5)$

D. $12^4 + 7(3^4 + 3)$

11. . What is the greatest common factor of 56 and 92?

A. 2 C. 7

B. 4 D. 8

12. Karen wrote the expression, $4 \times 4 \times 4 + 4(2 \times 2 \times 2 \times 2 \times 2 \times 2 + 2)$

Rewrite Karen's expression using exponents.

Expression: _____

13. **Find the value of the power.**

a) $2^7$ b) . $6^2$

**14. Determine whether the number is a perfect square.**

**a.** 48 **b.** 121

**c.** 225 **d.** 42

**15. Evaluate the expression.**

**a.** $8 + 3(20 \div 5)$ **b.** $6 \bullet 3 - 10 \div 2$

**c.** $2^3 + (8 - 4) \div 4$ **d.** $\frac{3(2 + 4)}{2}$

16. List the factor pairs of the number.

a. 26

b. 32

17. Write the prime factorization of the number.

a. 40

b. 52

18. Find the GCF of the following numbers.

a. 12, 32

b. 27, 39

c. 24, 64

d. 54, 84

19. Find the LCM of the following numbers.

a. 6, 15

b. 8, 18

c. 18, 24

d. 12, 21

20. A football coach divides 42 players into equal groups for a warm up drill. Each group should have at least 5 players but no more than 8 players. What are the possible group sizes?

21. You are filling identical fruit bowls using 36 apples and 48 oranges. What is the greatest number of bowls that you can fill using all of the fruit?

22. You have a Spanish club meeting every fourth day and a math club meeting every tenth day. Today you have both meetings. In how many days will you have both meetings on the same day again?

23. Commemorative coins come in packs of 15, while coin holders come in packs of 25. What are the least numbers of packs you should buy in order to have the same numbers of coins and coin holders?

24. You are creating identical candy bags using 18 chocolate bars and 30 peanut butter cups. What is the greatest number of bags you can fill using all the candy?

25. You have violin lessons every fourth day and singing lessons every fifth day. Today you have both lessons. In how many days will you have both lessons on the same day again?

26. You have 64 inches of blue fabric and 96 inches of green fabric. You want to cut the fabric into pieces of equal length with no leftovers. What is the greatest length of the pieces that you can make?

27. Two runners begin running laps around a one-mile track at the same time. The first runner completes a mile every 6 minutes and the second runner completes a mile every 8 minutes. After how long will the first runner lap the second runner?

28. On Monday, five students make up a rumor. On each of the next two days, every student that knows the rumor tells five other students. Write a power to represent the number of students that know the rumor at the end of day on Wednesday. Then find the number of students.

29. You are creating identical coupon booklets to sell for a fundraiser. You have 32 dry-cleaning coupons, 80 coupons for a local restaurant, and 47 movie theater coupons.

*Part A* Can you create multiple, identical coupon booklets using all of the coupons? Explain.

*Part B* You find one additional movie theater coupon. What is the greatest number of identical coupon booklets you can make?

_____ booklets

*Part C* Find the number of each type of coupon in one of the booklets from part B.

_____ dry-cleaning coupons
_____ restaurant coupons
_____ theater coupons

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Ms. Napolitano Activity 3.1

# 3.1 Simplifying Algebraic Expressions

Essential Question: How can you simplify an algebraic expression?

## *Homework*

**Identify the terms and like terms in the expression.**

**1.** $-4y + 7 + 9y - 3$

Terms: _____

Like Terms: _____

**2.** $3n^2 - 1.4n + 5n^2 - 6.4$

Terms: _____

Like Terms: _____

**3.** $\frac{1}{2}b^3 - b^3 + 2b$

Terms: _____

Like Terms: _____

**Simplify the expression.**

**4.** $-15m + 9m$

Answer: _____

**5.** $8k - 2(4 - 3k)$

Answer: _____

**6.** $3.2 - 9x + 7.1 - 3x$

Answer: _____

**7.** $25 - 6x - 12 - 2x$

Answer: _____

**8.** $19a - 7 - 3a + 12a$

Answer: _____

**9.** $\frac{5}{2}(6x - 7) + \frac{4}{3}(2 + 9x)$

Answer: _____

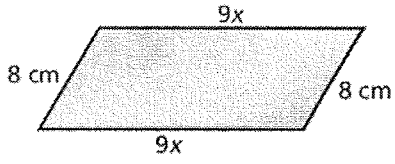
**10.** $\frac{1}{8}h + 7 - \frac{3}{4}h$

Answer: _____

**11.** $\frac{2}{3}y + 5 - 3 - \frac{11}{12}y$

Answer: _____

**12.** Write an expression in simplest form that represents the perimeter of the polygon.




Expression: _____