

Lesson 1.1 Skills Practice

NAME _____ DATE _____

Collection Connections Factors and Multiples

Vocabulary

Match each definition to its corresponding term.

- | | |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 1. a rectangular arrangement that has an equal number of objects in each row and an equal number of objects in each column | a. factor pair |
| 2. a number that is the product of a distinct factor multiplied by itself | b. divisible |
| 3. the product of a given whole number and another whole number | c. array |
| 4. two natural numbers other than zero that are multiplied together to produce another number | d. Commutative Property of Multiplication |
| 5. when a whole number can be divided evenly by another whole number | e. distinct factors |
| 6. one of the two numbers being multiplied together in a factor pair | f. perfect square |
| 7. factors that appear in a complete list of factors for a given number only once | g. factor |
| 8. changing the order of two or more factors in a multiplication problem does not change the product | h. multiple |

1**Problem Set**

List the factor pairs for each whole number.

1. 12

1 and 12, 2 and 6, 3 and 4, 4 and 3,
6 and 2, and 12 and 1

2. 35

3. 24

4. 80

5. 49

6. 64

List the distinct factors for each whole number.

7. 16

1, 2, 4, 8, 16

8. 144

9. 45

10. 60

11. 50

12. 25

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List the distinct factors for each whole number in order from least to greatest. Create a rainbow diagram with the distinct factor pairs.

13. 14

14. 32

1, 2, 7, 14



15. 100

16. 36

17. 30

18. 4

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List all of the ways to arrange each set of items.

19. Deon has a collection of 15 model cars he wants to display in rows. List all of the ways that Deon can display his cars in equal rows.

1 row of 15 cars, 15 rows of 1 car, 3 rows of 5 cars, 5 rows of 3 cars

20. Nina has a collection of 20 sea shells she wants to display in rows. List all of the ways that Nina can display her shells in equal rows.

21. Lee has a collection of 9 skateboards he wants to hang on his wall. List all of the ways that Lee can hang the skateboards in equal rows.

22. Serena is planting a flower garden. She buys 18 flowering plants. List all of the ways that Serena can plant the flowers in equal rows.

23. Clayton has a collection of 28 coins he wants to organize into equal groups. List all of the ways he can organize the coins into equal groups.

24. Isabel is decorating her room with 10 of her favorite family photos. List all of the ways that Isabel can hang the photos in equal rows.

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List the multiples of each whole number.

25. 3 multiples of 6

26. 3 multiples of 4

Answers will vary.

12, 18, 24

27. 3 multiples of 15

28. 3 multiples of 13

29. 3 multiples of 7

30. 3 multiples of 22

Use each description to answer the question.

31. Mattie wants to buy 24 apples to make 4 apple pies. The farmer's market sells baskets with 12 apples. How many baskets of apples should Mattie buy?

$$24 \div 12 = 2$$

Mattie should buy 2 baskets of apples.

32. Joelle wants to bake 90 blueberry muffins for a bake sale. The recipe makes 18 blueberry muffins per batch. How many batches of muffins must Joelle make?

33. Ye wants to buy 35 tennis balls for a tournament. The tennis balls are sold in sleeves of 4 balls. How many sleeves must Ye buy?

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34. Cristina wants to buy 45 balloons to decorate for a school dance. The balloons are sold in packages of 12 balloons. How many packages must Cristina buy?
35. Sofia wants to buy 72 plastic cups for the neighborhood block party. The cups are sold in packages of 24. How many packages must Sofia buy?
36. Kata wants to buy candles for her grandmother's 75th birthday cake. The candles are sold in packages of 15 candles. How many packages must Kata buy?

Lesson 1.2 Skills Practice

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Models and More Physical Models of Factors and Multiples

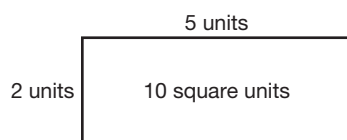
Vocabulary

Choose a term from the box to label each example.

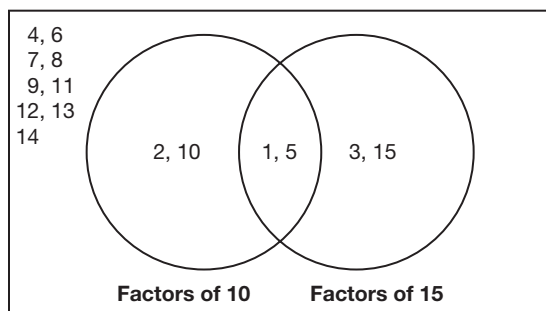
area model	Venn diagram	set
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1. {1, 2, 5, 10}

2.



3.



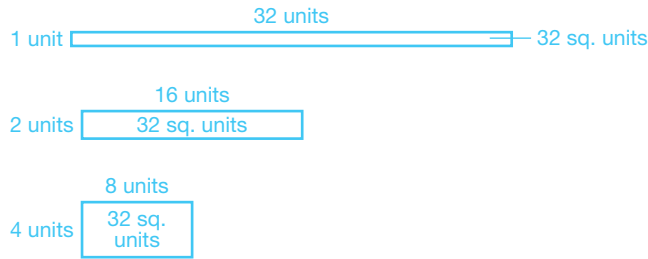
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Problem Set

Draw all of the possible distinct area models for each whole number.

1. 32

factor pairs: 1, 32; 2, 16; 4, 8



2. 36

3. 41

4. 44

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5. 31

6. 49

Draw an area model for each situation.

- 7. Franco has a collection of 18 model airplanes he wants to display in rows. List all of the ways that Franco can display his airplanes in equal rows. Draw an area model for an arrangement that you recommend.

1 row of 18 airplanes, 18 rows of 1 airplane, 2 rows of 9 airplanes, 9 rows of 2 airplanes, 3 rows of 6 airplanes, 6 rows of 3 airplanes

Area model answers will vary.



- 8. Denisa has a collection of 12 gymnastic trophies she wants to display in rows. List all of the ways that Denisa can display her trophies in equal rows. Draw an area model for an arrangement that you recommend.

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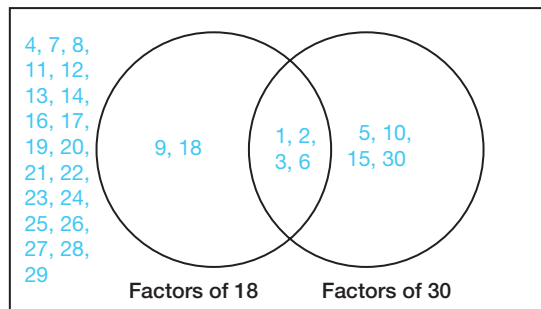
9. Sherwin wants to arrange 80 chairs in rows for a wedding ceremony. List all of the ways that Sherwin can arrange the chairs in equal rows. Draw an area model for an arrangement that you recommend.
10. Pedro is planting a vegetable garden. He has 24 plants that he would like to plant in rows. List all of the ways that Pedro can plant the vegetables in equal rows. Draw an area model for an arrangement that you recommend.
11. Mei has a collection of 28 stamps that she would like to display in rows. List all of the ways that Mei can display her stamps in equal rows. Draw an area model for an arrangement that you recommend.

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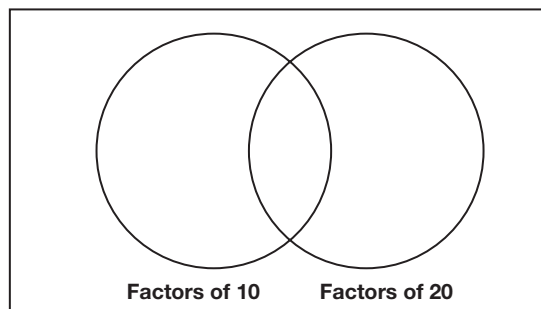
12. Shen is arranging a fossil exhibit for the museum. There are 15 plant fossils to be displayed on a table. List all of the ways that Shen can display the fossils in equal rows. Draw an area model for an arrangement that you recommend.

Complete each Venn diagram.

13. Complete the Venn diagram that shows the factors of 18 and 30. Use the natural numbers between 1 and 30.

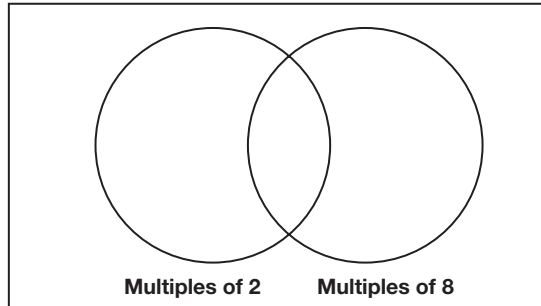


14. Complete the Venn diagram that shows the factors of 10 and 20. Use the natural numbers between 1 and 20.

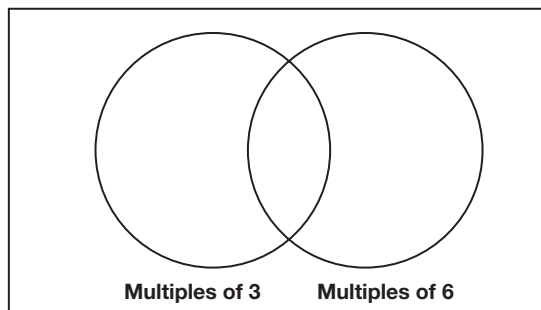


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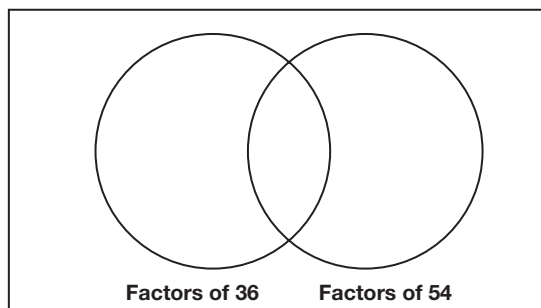
15. Complete the Venn diagram that shows the multiples of 2 and 8. Use the natural numbers between 1 and 30.



16. Complete the Venn diagram that shows the multiples of 3 and 6. Use the natural numbers between 1 and 20.



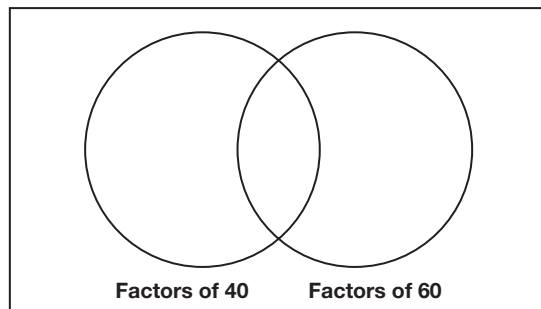
17. Complete the Venn diagram that shows the factors of 36 and 54.



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18. Complete the Venn diagram that shows the factors of 40 and 60.



Lesson 1.3 Skills Practice

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Sifting for Prime Numbers Investigating Prime and Composite Numbers

Vocabulary

Write a definition for each term in your own words.

1. prime numbers
2. composite numbers
3. multiplicative identity

Problem Set

List the distinct factors for each whole number. State whether the number is prime, composite, or neither.

1. 48
distinct factors: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
The number 48 is a composite number.
2. 47
3. 75

1

4. 1

5. 37

6. 56

7. 2

8. 87

9. 54

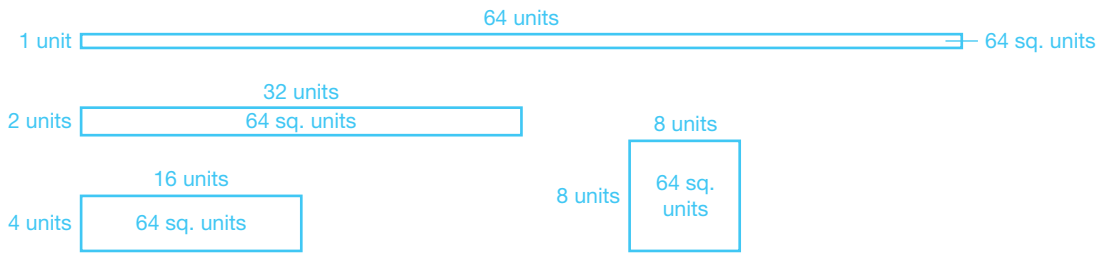
10. 59

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Draw all of the possible distinct area models for each whole number. State whether the number is prime, composite, or neither.

11. 64

factor pairs: 1, 64; 2, 32; 4, 16; 8, 8



The number 64 is a composite number.

12. 43

13. 55

1

14. 42

15. 1

16. 53

17. 61

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18. 63

19. 45

20. 71

Identify a number that makes each statement true.

21. $7 \times \underline{\quad} = 7$

22. $\underline{\quad} \times 1 = 9$

23. $\underline{\quad} \times 1 = 4$

24. $\underline{\quad} \times 8 = 8$

25. $12 \times \underline{\quad} = 12$

26. $\underline{\quad} \times 1 = 23$

Lesson 1.4 Skills Practice

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Divisibility Rules! Investigating Divisibility Rules

Vocabulary

Write a definition for the term in your own words.

1. divisibility rules

Problem Set

Complete each statement.

1. A number is divisible by 2 if _____ the ones digit is 0, 2, 4, 6, or 8.
2. A number is divisible by 5 if _____
3. A number is divisible by 3 if _____
4. A number is divisible by 6 if _____
5. A number is divisible by 9 if _____
6. A number is divisible by 4 if _____

1

Complete the table. Place an X in the appropriate column for each number that is divisible by the given number.

7.

Number	Divisible by 2
628	X
570	X
1389	
2146	X
395	
8614	X
6530	X
7942	X
4631	
9730	X

8.

Number	Divisible by 5
628	
570	
1389	
2146	
395	
8614	
6530	
7942	
4631	
9730	

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9.

Number	Divisible by 10
628	
570	
1389	
2146	
395	
8614	
6530	
7942	
4631	
9730	

10.

Number	Divisible by 2
1350	
406	
523	
216	
8202	
441	
7510	
117	

1

11.

Number	Divisible by 3
1350	
406	
523	
216	
8202	
441	
7510	
117	

12.

Number	Divisible by 6
1350	
406	
523	
216	
8202	
441	
7510	
117	

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13.

Number	Divisible by 9
1431	
874	
7020	
428	
963	
6867	
2160	
543	

14.

Number	Divisible by 4
6536	
3184	
940	
76,342	
8032	
154	
124	
54,098	

1

Fill in the missing digit for each number to make each statement true.

15. The number 20,0__0 is divisible by 6.

16. The number 874__ is divisible by 4.

The possible values are 1, 4, or 7.

17. The number 17__ is divisible by 9.

18. The number 985__ is divisible by 2.

19. The number 76,29__ is divisible by 10.

20. The number 56__0 is divisible by 3.

21. The number 629__ is divisible by 5.

22. The number 23__ is divisible by 4.

23. The number 78__ is divisible by 9.

24. The number 462__ is divisible by 6.

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Use the clues to determine each number.

- 25.** Sofia is thinking of a mystery number. Use the following clues to determine the number.

Clue 1: The number is a two-digit number.

Clue 2: The number is a multiple of 8.

Clue 3: The number is divisible by 3.

Clue 4: The number is less than 30.

The mystery number is 24.

Clue 1: The number is between 10 and 99.

Clue 2: The number could be 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, or 96.

Clue 3: The number could be 24, 48, 72, or 96.

Clue 4: The only number remaining that is less than 30 is 24.

- 26.** Leon is thinking of a mystery number. Use the following clues to determine the number.

Clue 1: The number is a two-digit number.

Clue 2: The number is divisible by 5 and ends in 5.

Clue 3: The number is a multiple of 25.

Clue 4: The number is divisible by 3.

1

27. Sen is thinking of a mystery number. Use the following clues to determine the number.

Clue 1: The number is a two-digit number.

Clue 2: The number is a multiple of 9.

Clue 3: The number is divisible by 6.

Clue 4: The number is divisible by 10.

28. Darnell is thinking of a mystery number. Use the following clues to determine the number.

Clue 1: The number is divisible by 5 but not divisible by 10.

Clue 2: The number is divisible by 9.

Clue 3: The number is a four-digit number.

Clue 4: The number contains only two different digits.