Lesson 6-7 · Session 1

Factors and Greatest Common Factor

Name _____ Date _____ Period _____

Maryland Standard 6.NOS.4 · Learning target — I can list the factors of two numbers and find their greatest common factor.
Show a model, calculation, or explanation. Answer every part and label units when needed.

Exercises 1–12 earn 1 point for a correct response and 1 for supporting work. Spiral Review and Test Practice earn 1 point each.

Learn from a model

REMEMBER

- Factors of a number divide into it evenly with no remainder.
- The Greatest Common Factor (GCF) is the largest factor two or more numbers share.
- Watch out — the greatest common factor is the largest shared factor, not the largest factor of either number.
- Check it — divide both numbers by your GCF; both results must be whole numbers.

WORKED EXAMPLE

Finding the Greatest Common Factor Find the greatest common factor of 16 and 24.

Step 1 List the factors of 16. 1, 2, 4, 8, 16
Step 2 List the factors of 24. 1, 2, 3, 4, 6, 8, 12, 24
Step 3 Mark the factors that are in both lists. 1, 2, 4, 8
Step 4 Pick the greatest shared factor. GCF = 8
Answer **The greatest common factor of 16 and 24 is 8.**

Practice

1. List all factors of 18: _____

Answer _____

SHOW YOUR THINKING

2. List all factors of 24: _____

Answer _____

SHOW YOUR THINKING

3. Find the GCF of 18 and 24 using your lists above. _____

Answer _____

SHOW YOUR THINKING

4. Complete each line about factors.

a. All factors of 20: _____
b. All factors of 36: _____
c. GCF of 20 and 36: _____
d. GCF of 9 and 12: _____
e. Prime factorization of 30: _____

Answer _____

SHOW YOUR THINKING

5. Team Packs. A coach has 42 cones and 56 vests to split into identical packs with nothing left over. Find the greatest number of packs.

Answer _____

SHOW YOUR THINKING

6. Book Shelves. A librarian has 45 novels and 75 comics to shelve in identical groups with nothing left over. Find the greatest number of groups, then find what goes in one group.

Answer _____

SHOW YOUR THINKING

7. Prime Tree. Build a factor tree for 84 in the work space, then write the prime factorization.

Answer _____

SHOW YOUR THINKING

8. Devon says the greatest common factor of two numbers is always smaller than both numbers. Find a pair of numbers that shows he is wrong, then explain.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. Find the GCF of 20 and 32.

Answer _____ GCF

SHOW YOUR THINKING

10. Find the GCF of 27 and 45.

Answer _____ GCF

SHOW YOUR THINKING

11. Use the GCF. A club has 30 pens and 42 notebooks for identical kits with nothing left over. Find the greatest number of kits and the contents of each.

Answer _____ kits and contents

SHOW YOUR THINKING

12. Find the Mistake. Asked for the GCF of 8 and 12, Rob answered 24. Explain the mistake.

Answer _____ the mistake and the GCF

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 6-6 Session 1. Simplify 7a + 3 + 2a.

Answer _____

SHOW YOUR THINKING

14. From Lesson 6-3 Session 2. Find the value of 6 to the 2nd power.

Answer _____

SHOW YOUR THINKING

15. From Lesson 4-4 Session 1. Find 35% of 400.

Answer _____

SHOW YOUR THINKING

Test practice

16. The GCF of 14 and 21 is —

□ A. 3	□ B. 7
□ C. 42	□ D. 2

17. The GCF of 9 and 16 is —

□ A. 144	□ B. 3
□ C. 1	□ D. 4

18. The GCF of 24 and 36 is —

□ A. 4	□ B. 6
□ C. 72	□ D. 12

Check and revise

CHECK YOUR MATHEMATICS

Check whether your answer must divide the numbers or be divisible by them.

Every part answered / Work shown / Units labeled when needed

HOW DID IT GO?

I can do this:
Independently / With a hint / With help

Question to revisit: _____

One correction or question I want to discuss: _____

Check one result with a model, an inverse operation, or substitution. Explain why the values agree.
Sentence Frame: "I know this because..."