

Task 1: Multiplicative Comparisons

Compare quantities using 'times as many' · 4.OA.A.1, A.2 · Page 1 of 2

Directions: Solve each problem. Show your work in the box and write your final answer on the line.

1. Maya has 7 stickers. Zoe has 5 times as many. How many does Zoe have?

Answer: _____

2. A small box holds 8 crayons. A large box holds 6 times as many. How many crayons in the large box?

Answer: _____

3. Tomás ran 3 miles. His brother ran 7 times as far. How far did his brother run?

Answer: _____

4. A cat weighs 9 pounds. A dog weighs 4 times as much. How much does the dog weigh?

Answer: _____

5. Maya saved \$12. Her sister saved 3 times as much. How much did her sister save?

Answer: _____

6. A book has 45 pages. Another book has 3 times as many. How many pages?

Answer: _____

Task 1: Multiplicative Comparisons

Compare quantities using 'times as many' · 4.OA.A.1, A.2 · Page 2 of 2

Directions (continued): Finish Task 1 with problems 7–12.

7. Sam has 6 dollars. Maya has 24 dollars. How many times as much money does Maya have?

Answer: _____

8. A small bag has 8 grapes. A big bag has 56. How many times as many grapes?

Answer: _____

9. Maya read 9 pages. Tomás read 72 pages. How many times as many did Tomás read?

Answer: _____

10. A tree is 4 feet tall. A second tree is 5 times as tall. Write a multiplication equation and solve.

Answer: _____

11. Word Problem: Sam scored 8 points. Tomás scored 4 times as many points, then 3 more. How many did Tomás score?

Answer: _____

12. Word Problem: A red ribbon is 6 inches. A blue ribbon is 5 times as long. How much longer is the blue ribbon than the red one?

Answer: _____

TASK 2 · WORKED EXAMPLE

Multi-Step Word Problems with Remainders

Interpret remainders in real-world division · 4.OA.A.3

When you divide in a word problem, you'll often get a **remainder**. What you do with it depends on the question. Sometimes you **ROUND UP** (you need an extra van even for 1 leftover person). Sometimes you **DROP** it (only complete teams of 5 get to play). Sometimes the remainder **IS** the answer (how many cookies are left over). Read carefully.

You have a remainder. What do you do?

ROUND UP ↑

Even 1 leftover needs another container.

"How many vans / boxes / buses?"

DROP ↓

Only complete groups count.

"How many full teams / groups?"

KEEP =

The remainder **IS** the answer.

"How many are left over?"

Step 1: Read the problem. Plan the steps before calculating.

Step 2: Divide. Get a quotient and a remainder.

Step 3: Decide what the remainder means in this problem: round up, drop, or keep.

Step 4: Write the answer in a complete sentence with the right unit.

Three remainder rules: (1) **Round up** for 'how many vans/buses/boxes are needed' — even one leftover needs another container. (2) **Drop the remainder** for 'how many full teams/groups can be made.' (3) **The remainder is the answer** for 'how many are left over.'

Try It: 30 students need vans. Each van holds 8 students. How many vans are needed?

Check your thinking: 4 vans. ($30 \div 8 = 3 \text{ R } 6$ — but the 6 leftover students need a 4th van.)



Task 2: Multi-Step Word Problems with Remainders

Interpret remainders in real-world division · 4.OA.A.3 · Page 1 of 2

Directions: Solve each problem. Show your work in the box and write your final answer on the line.

1. 26 students go on a field trip. Each car holds 4. How many cars are needed?

Answer: _____

2. A baker has 50 cookies. He packs them in boxes of 6. How many full boxes can he make?

Answer: _____

3. Maya bakes 35 cupcakes. She gives 4 to each friend. How many are left after giving to 8 friends?

Answer: _____

4. A school has 95 students. They put them in classes of 25. How many full classes? How many students don't fit?

Answer: _____

5. Tomás buys 4 pizzas. Each pizza has 8 slices. He eats 7 slices. How many are left?

Answer: _____

6. Sam has \$50. Bracelets cost \$7. How many can she buy, and how much money is left?

Answer: _____

Task 2: Multi-Step Word Problems with Remainders

Interpret remainders in real-world division · 4.OA.A.3 · Page 2 of 2

Directions (continued): Finish Task 2 with problems 7–12.

7. A class of 28 students forms teams of 6. How many full teams? How many extra students?

Answer: _____

8. A library has 156 books. They go on shelves that hold 20 each. How many shelves are needed?

Answer: _____

9. Maya jogs 5 miles each weekday. After 4 weeks, how many miles has she jogged?

Answer: _____

10. Tomás reads 3 books a month. After 2 years, how many books?

Answer: _____

11. A truck holds 9 boxes. There are 75 boxes to deliver. How many trips?

Answer: _____

12. Maya saves \$12 each week. She wants to buy a \$100 game. How many weeks until she has enough?

Answer: _____

TASK 3 · WORKED EXAMPLE

Factors, Multiples & Prime Numbers

Find factors, list multiples, identify prime/composite · 4.OA.B.4

Factors of a number are whole numbers that divide into it evenly. The factors of 12 are 1, 2, 3, 4, 6, and 12. **Multiples** of a number are what you get when you multiply it by 1, 2, 3, etc. Multiples of 4: 4, 8, 12, 16... A **prime** number has exactly 2 factors (1 and itself). A **composite** number has more than 2 factors.

Factor pairs of 12

$$1 \times 12$$

$$2 \times 6$$

$$3 \times 4$$

All factors of 12: **1, 2, 3, 4, 6, 12** · 12 has more than 2 factors → **composite**.

Step 1: To find **factors**: list all pairs of whole numbers that multiply to make the number. Start with $1 \times n$.

Step 2: To find **multiples**: skip-count by the number — 4, 8, 12, 16, 20...

Step 3: To check if a number is **prime**: try to factor it. If only $1 \times$ itself works, it's prime.

Step 4: Numbers like 0 and 1 are **neither prime nor composite** — they're special cases.

Quick prime check (under 100): Test divisibility by 2, 3, 5, and 7. If none of these divide evenly, the number is prime. Examples of primes: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31.

Try It: List all the factors of 18.

Check your thinking: 1, 2, 3, 6, 9, 18. (Pairs: 1×18 , 2×9 , 3×6 .)



Task 3: Factors, Multiples & Prime Numbers

Find factors, list multiples, identify prime/composite · 4.OA.B.4 · Page 1 of 2

Directions: Solve each problem. Show your work in the box and write your final answer on the line.

1. List all factors of 24.

Answer: _____

2. List all factors of 36.

Answer: _____

3. List all factors of 17.

Answer: _____

4. List the first 6 multiples of 7.

Answer: _____

5. List the first 5 multiples of 9.

Answer: _____

6. Is 23 prime or composite? Explain.

Answer: _____

Task 3: Factors, Multiples & Prime Numbers

Find factors, list multiples, identify prime/composite · 4.OA.B.4 · Page 2 of 2

Directions (continued): Finish Task 3 with problems 7–12.

7. Is 51 prime or composite? Explain.

Answer: _____

8. Is 29 prime or composite? Explain.

Answer: _____

9. Is 35 a multiple of 5? Of 7? Of 6?

Answer: _____

10. What is the smallest number that is a multiple of both 4 and 6?

Answer: _____

11. Word Problem: Maya has 30 stickers to share equally. Name 4 different ways she could group them.

Answer: _____

12. Word Problem: A box of 24 cookies. Can it be split evenly among 5 friends? Explain.

Answer: _____

TASK 4 · WORKED EXAMPLE

Number & Shape Patterns

Generate and describe patterns from a rule · 4.OA.C.5

A **pattern** follows a rule. To find the rule, look at how each term changes from the one before it — does it ADD, SUBTRACT, MULTIPLY, or DIVIDE? Once you know the rule, you can extend the pattern, predict any term, and describe a feature like 'all the numbers are even.'



Rule: **add 5**. Same gap each time → addition rule. All terms are multiples of 5.

Step 1: Find the difference (or ratio) between each term and the next.

Step 2: If the difference is the same each time, the rule is **add or subtract** that amount.

Step 3: If the ratio is the same, the rule is **multiply or divide** by that amount.

Step 4: Apply the rule to extend the pattern, and look for features (all even? all odd? always end in 5?).

Always check the rule on at least 2 terms. If $3 \rightarrow 6 \rightarrow 9 \rightarrow 12$, the rule is $+3$ (checks for all 3 jumps). Don't guess from just one step.

Try It: What's the rule? 5, 10, 20, 40, 80, ...

Check your thinking: Multiply by 2 each time. Next term: 160.



Task 4: Number & Shape Patterns

Generate and describe patterns from a rule · 4.OA.C.5 · Page 1 of 2

Directions: Solve each problem. Show your work in the box and write your final answer on the line.

1. What's the rule? 3, 7, 11, 15, 19, ...

Answer: _____

2. What's the rule? 2, 6, 18, 54, ...

Answer: _____

3. What's the rule? 100, 90, 80, 70, ...

Answer: _____

4. What's the rule? 1, 4, 9, 16, 25, ...

Answer: _____

5. Continue the pattern: 2, 4, 8, 16, ____, ____

Answer: _____

6. Continue the pattern: 50, 45, 40, 35, ____, ____

Answer: _____

Task 4: Number & Shape Patterns

Generate and describe patterns from a rule · 4.OA.C.5 · Page 2 of 2

Directions (continued): Finish Task 4 with problems 7–12.

7. Rule: 'Add 6.' Start at 4. List the first 5 terms.

Answer: _____

8. Rule: 'Multiply by 5.' Start at 1. List the first 5 terms.

Answer: _____

9. Look at the pattern **2, 4, 6, 8, 10, ...** . Are all the numbers even or odd?

Answer: _____

10. Shape pattern: $\triangle \circ \square \triangle \circ \square \triangle \circ$ ____ . What comes next?

Answer: _____

11. Word Problem: A theater adds 5 seats to each row. Row 1 has 12 seats. How many in row 6?

Answer: _____

12. Word Problem: Maya saves \$3 the first week, then doubles her savings each week. How much in week 5?

Answer: _____

TASK 5 · WORKED EXAMPLE

Error Analysis: Multiplication & Division

Find and fix common reasoning mistakes · 4.OA.A.1, A.3, B.4, C.5

Mistakes in multiplication and division word problems usually come from one of three places: confusing additive vs multiplicative comparisons, mishandling remainders, or missing factors when listing them. For each, find the mistake, explain it, and write the correct answer.

Maya has 5 marbles. Sam has 4 times as many. How many marbles does Sam have?

✗ WRONG

$$5 + 4 = 9$$

added instead of multiplied

✓ CORRECT

$$5 \times 4 = 20$$

"times as many" = multiply

Look: Read the problem and the student's work carefully.

Find: Where did the error happen? Comparison type, remainder, or factoring?

Explain: State the mistake in your own words: 'They added instead of multiplied,' etc.

Fix: Redo the problem the right way and write the correct answer.

Check your reasoning, not just your math. If a problem says 'times as many,' the answer should be much bigger. If a problem asks 'how many vans,' the answer should be a whole number with no remainder leftover.

Try It: A student says 4 times 7 is the same as 4 plus 7. Find the mistake.

Check your thinking: 'Times' means multiply, not add. $4 \times 7 = 28$, not $4 + 7 = 11$.



Task 5: Error Analysis: Multiplication & Division

Find and fix common reasoning mistakes · 4.OA.A.1, A.3, B.4, C.5 · Page 1 of 2

Directions: Solve each problem. Show your work in the box and write your final answer on the line.

1. Maya has 5 apples. Tomás has 3 times as many. A student answered **8 apples** . Find the mistake.

Answer: _____

2. 26 students. Each van holds 6. A student said **4 vans** . Find the mistake.

Answer: _____

3. A student listed factors of 16 as: **1, 2, 4, 8** . Find the mistake.

Answer: _____

4. A student said 9 is prime. Find the mistake.

Answer: _____

5. Pattern: 2, 5, 8, 11, ... A student said the rule is 'multiply by 3.' Find the mistake.

Answer: _____

6. A student said 'A bus holds 50 students. There are 320 students. So we need 6 buses.' Find the mistake.

Answer: _____

Task 5: Error Analysis: Multiplication & Division

Find and fix common reasoning mistakes · 4.OA.A.1, A.3, B.4, C.5 · Page 2 of 2

Directions (continued): Finish Task 5 with problems 7–12.

7. A student listed the multiples of 6 as: **1, 6, 12, 18, 24** . Find the mistake.

Answer: _____

8. Maya has 4 marbles. Sam has 5 more. A student multiplied $4 \times 5 = 20$. Find the mistake.

Answer: _____

9. A baker has 47 cookies. Boxes hold 8 each. A student said he can make 6 boxes. Find the mistake.

Answer: _____

10. A student said 21 is prime. Find the mistake.

Answer: _____

11. Explain: why is the rule 'add 5' different from the rule 'multiply by 5'?

Answer: _____

12. Explain: why does '24 students need rides, each car holds 5' need rounding up?

Answer: _____

Mini-Assessment — Multiplication, Division & Patterns

Score: _____ / 8

Directions: Show your work in the space provided. Read each problem carefully. This mini-assessment covers all 5 tasks in the packet.

1. Maya has 8 books. Sam has 6 times as many. How many books does Sam have?

Answer: _____

2. A class has 32 students. They split into teams of 5. How many full teams?

Answer: _____

3. A school orders pencils for 142 students. Boxes hold 12 pencils. How many boxes are needed?

Answer: _____

4. List all factors of 28.

Answer: _____

5. Is 37 prime or composite? Explain.

Answer: _____

6. What is the rule for this pattern? 4, 12, 36, 108, ...

Answer: _____

7. Continue the pattern: 80, 75, 70, 65, _____, _____

Answer: _____

8. **Error Analysis:** A student says 'Maya has 5 marbles. Sam has 3 times as many. So Sam has 8 marbles.' Explain the mistake and give the correct answer.

Answer: _____