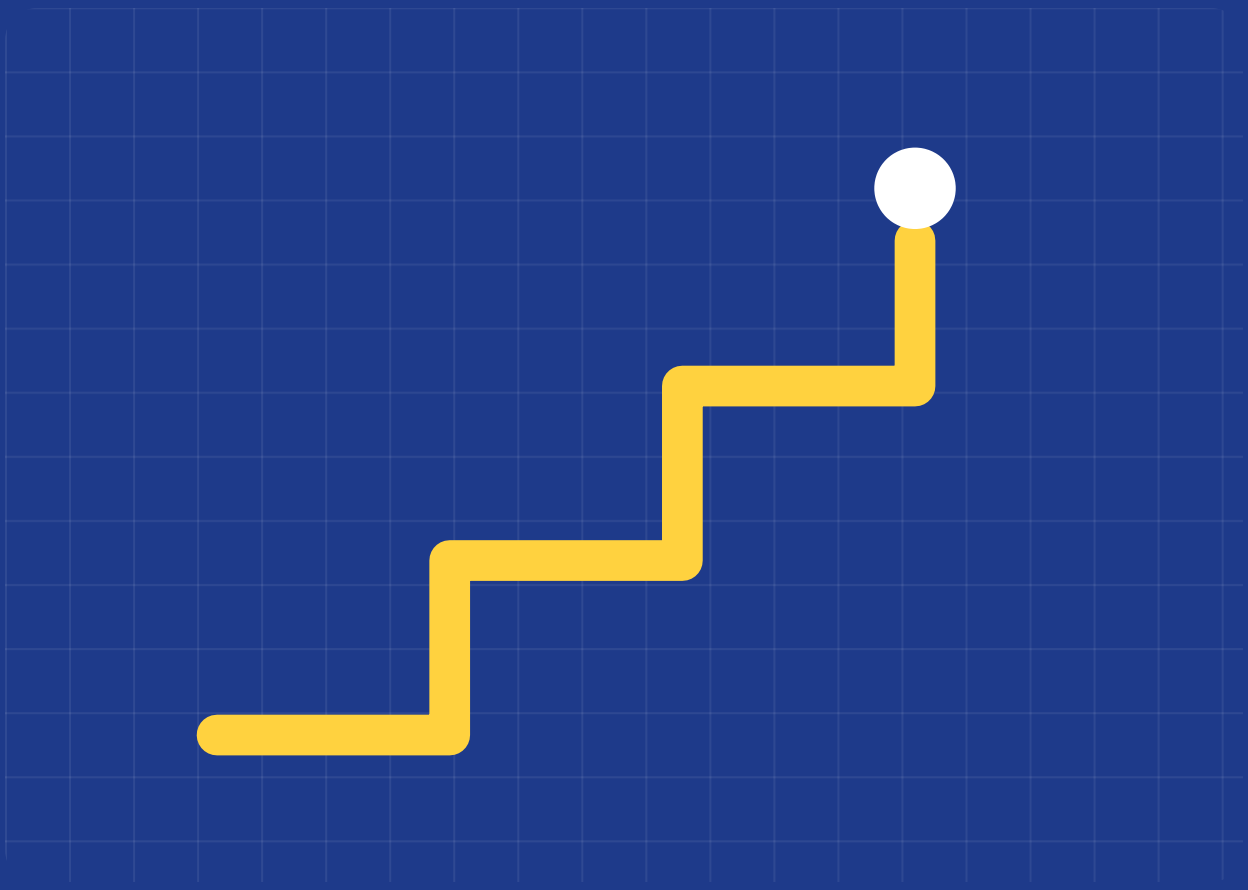
UpOnly Learning



GRADE 4

FREE SAMPLE WORKBOOK

Math Grade 4

One step at a time. · Ages 9–10 · Free sample: 1 of 14 topics

UO-MATH-4

OUR STORY

One step at a time

I'm Dr. Evan J. Hasson. I've run a specific chiropractic practice for over twelve years, and I'm a dad of three. My work is about alignment: get the structure right, and everything else works better.

At home, nothing was aligned. I was spending thousands a month on tutors, extracurriculars and programs, and when I asked about enrolling a second or third child the answer was always the same: that'll be double, that'll be triple. The charter school had a waiting list. The good public school had a waiting list. The private schools had the kind of list where it helps to know someone, or to give generously first.

And underneath all of it, the same quiet threat: if you don't pay for this, your child will fall behind. Not sold with evidence. Sold with fear.

So I did my own research, and here is what I found: none of it is secret. The standards are published. The order a child should learn in is written down and freely available. It is just scattered. Nobody had done the work of pulling it together, putting it in order and handing it over. So I did.

When every step has its place, confusion has nowhere to hide.

I built this for my own kids. I'm giving it to yours.

Dr. Evan J. Hasson, DC
Founder and dad of three

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No guaranteed results, and mistakes happen. Every student learns differently. We write and review every question and answer key carefully, and we still get things wrong — an answer key can be wrong, and a question can be worded badly or have two defensible answers. Check the answer key before you hand it over, and trust your own judgment over ours. Found a problem? **Photograph the page and email it to support@uponlylearning.com** — the picture tells us more than a description, and we fix it for every family.

Safety. Some activities use household items such as scissors, coins or food. An adult should supervise and skip anything unsafe for the student.

Not professional advice. This workbook does not replace an evaluation by a qualified educator or specialist. The founder is a Doctor of Chiropractic; UpOnly Learning does not provide medical or health advice.

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INTRODUCTION

How to use this workbook

Each topic follows the same steps, so your student always knows what comes next.

① **Quick Check.** 10 questions before you teach. Read them aloud for younger students. A high score means you can move faster.

② **Learn It.** Key words, step-by-step teaching with lines you can read aloud, worked examples and the mistakes to watch for.

③ **We Do It Together.** 10 questions you do side by side. The answer and the "why" are printed right after each question, so you can talk it through.

④ **You Try.** 10 questions your student does alone.

Answers with short explanations for every question are in the **Answer Key** at the end of each topic, so students can work without peeking. Go over each wrong answer together using the explanation.

This workbook is printed in full color. To save ink, choose "Black and white" or "Grayscale" in your printer settings; every page still works in black and white.

Want online checks that score themselves and track each student's progress? Visit uponlylearning.com.

GRADE 4

CONTENTS · UO-MATH-4

Math: Grade 4

Free Sample Workbook · Ages 9–10 · 1 of 14 topics, with a Quick Check, a lesson, We Do It Together, You Try and an answer key

Our story

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How to use this workbook

Topic 1 · Times as many: comparing with multiplication

Multiplicative comparison; times as many vs. more than 4.OA.A

Quick Check · Learn It · We Do It Together · You Try · Answer Key

TOPIC 1 · 4.OA.A

↑ CONTENTS

Times as many: comparing with multiplication

The student will read a multiplication equation as a comparison (35 = 5 × 7 means 35 is 5 times as many as 7), tell "times as many" apart from "more than", and solve comparison word problems by multiplying or dividing, using a letter for the unknown.

① Quick Check

Do this before the lesson. It shows what your student already knows. Score: ____ / 10

1. Which sentence describes the equation 20 = 5 × 4?

A 20 is 5 times as many as 4 **B** 5 is 4 times as many as 20 **C** 20 is 5 more than 4

D 4 is 5 times as many as 20

2. Which sentence describes the equation 72 = 8 × 9?

A 8 is 9 times as many as 72 **B** 72 is 8 times as many as 9 **C** 72 is 8 more than 9

D 9 is 8 times as many as 72

3. Which sentence describes the equation 24 = 6 × 4?

A 6 is 4 times as many as 24 **B** 24 is 6 times as many as 4 **C** 4 is 6 times as many as 24

D 24 is 6 more than 4

4. Tomas has 12 stickers. Jonas has 6 times as many stickers as Tomas. How many stickers does Jonas have?

A 72 **B** 60 **C** 18 **D** 66

5. The sunflower is 27 centimeters tall. The fence is 5 times as tall as the sunflower. How tall is the fence?

A 162 centimeters **B** 140 centimeters **C** 135 centimeters **D** 32 centimeters

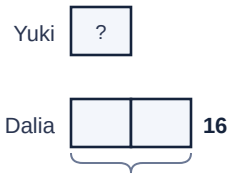
6. A desk costs $40. A lamp costs $8. The desk costs how many times as much as the lamp?

A 5 **B** 2 **C** 3 **D** 4

7. Noor planted 96 seeds. Dev planted 12 seeds. How many times as many seeds did Noor plant as Dev?

A 8 **B** 6 **C** 84 **D** 7

8. Dalia collected 16 pencils. That is 2 times as many pencils as Yuki collected. How many pencils did Yuki collect? Use the tape diagram to help.



A 18 **B** 8 **C** 14 **D** 32

9. A building is 96 feet tall. It is 8 times as tall as a tree. The tree is 3 times as tall as a bush. How tall is the bush?

A 12 feet **B** 4 feet **C** 36 feet **D** 85 feet

10. A puppy weighs 6 pounds. A dog weighs 5 times as much as the puppy. A pony weighs 8 times as much as the dog. How much does the pony weigh?

A 19 pounds **B** 30 pounds **C** 48 pounds **D** 240 pounds

② Learn It

Key words

- **compare**: To decide how two amounts are alike or different, by how many more or by how many times as many.
- **times as many**: A comparison that multiplies: 3 times as many as 5 is 3 groups of 5, or 15.
- **more than**: A comparison that adds: 3 more than 5 is 5 + 3, or 8.
- **multiplicative comparison**: A comparison that tells how many times as big one amount is as another.
- **tape diagram**: A drawing of bars split into equal boxes that shows how amounts compare.
- **unknown**: The number you are trying to find. A letter such as n can stand for it in an equation.
- **equation**: A number sentence with an equal sign, such as 24 = 3 × 8.

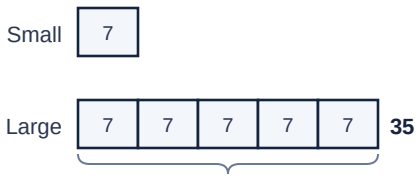
Warm-up

1. Put 4 counters in a row for yourself. Ask the student to make a row with 3 more counters than yours (7).
2. Now ask the student to make a row with 3 times as many counters as yours (12), by making 3 groups of 4.
3. Ask: Which row is longer? Why are the two answers different?

> *"3 more" and "3 times as many" sound alike, but they are very different. Today you will learn to tell them apart.*

Teach

1. Write 35 = 5 × 7. Read it two ways: "35 is 5 times as many as 7" and "35 is 7 times as many as 5." Both are true.
2. Draw a tape diagram: one box labeled 7 for the smaller amount, and a bar of 5 equal boxes of 7 for the larger amount. Show that the long bar is 5 × 7 = 35.
3. Contrast with addition: draw a bar of 7 and a bar of 7 plus a small extra piece of 5. That bar is 7 + 5 = 12, which is "5 more than 7."
4. Show the three kinds of questions. Find the larger amount: multiply (6 × 4 = 24). Find the smaller amount: divide (24 ÷ 6 = 4). Find how many times as many: divide (24 ÷ 4 = 6).
5. Write an equation with a letter for the unknown: "n is 6 times as many as 4" becomes n = 6 × 4, so n = 24.



Times as many means equal groups. Picture the small bar copied again and again.

Guided practice

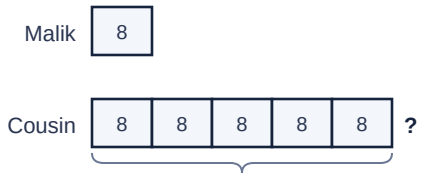
1. Solve together: Lena has 5 shells. Omar has 4 times as many. How many shells does Omar have? Draw the tape diagram first (20).
2. Solve together: A red ribbon is 36 inches long. It is 3 times as long as a blue ribbon. How long is the blue ribbon? (36 ÷ 3 = 12 inches)
3. Ask the student to write each problem as an equation with a letter, such as r = 4 × 5 or 3 × b = 36.
4. For each answer, ask: Should the answer be bigger or smaller than the number you started with?

Draw the bars first. The picture tells you whether to multiply or divide.

Worked examples

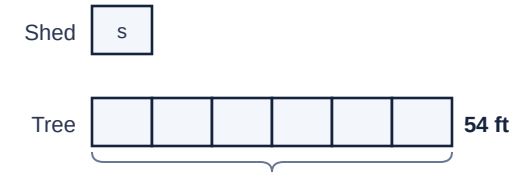
Read 42 = 6 × 7 as a comparison sentence.
42 is 6 times as many as 7, and 42 is also 7 times as many as 6. Both sentences describe the same equation.

Malik has 8 stamps. His cousin has 5 times as many stamps. How many stamps does his cousin have?



40 stamps. Five times as many means 5 groups of 8, so 5 × 8 = 40.

A tree is 54 feet tall. It is 6 times as tall as a shed. How tall is the shed? Write an equation with a letter.



9 feet. The equation 6 × s = 54 shows 6 sheds stacked up. Divide: 54 ÷ 6 = 9, so s = 9 feet.

Watch for these mistakes

Mistake: "4 times as many as 6" means 6 + 4 = 10.
Fix: Make 6 counters, then make 4 groups of 6. Count both. Show the student that adding 4 answers "4 more than 6", while "4 times as many" needs 4 equal groups: 4 × 6 = 24.

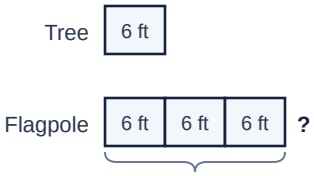
Mistake: When the problem says "times as many," always multiply.
Fix: Ask which amount is unknown. If the larger amount is known and the smaller one is missing, divide. Draw the tape diagram: 36 split into 3 equal boxes gives 12 in each box.

Mistake: In 30 = 5 × 6, only 5 can be the "times" number.
Fix: Multiplication can be done in any order, so 30 is 5 times as many as 6 and also 6 times as many as 5. Show both tape diagrams.

③ We Do It Together: 10 questions

> *Do these side by side. Read each question together, let your student answer, then read the answer and the "why" right below it and talk it through.*

1. The small tree is 6 feet tall. The flagpole is 3 times as tall as the small tree. How tall is the flagpole? Use the tape diagram to help.



A 21 feet **B** 9 feet **C** 18 feet **D** 12 feet

> **Answer: C** 18 feet
> **Why:** "3 times as tall" means 3 copies of 6 feet end to end, so multiply: 3 × 6 = 18. Adding 3 would only add 3 feet.

2. Which sentence describes the equation 18 = 6 × 3?

A 3 is 6 times as many as 18 **B** 18 is 6 more than 3 **C** 18 is 6 times as many as 3

D 6 is 3 times as many as 18

> **Answer: C** 18 is 6 times as many as 3
> **Why:** The equation 18 = 6 × 3 says that 18 is 6 groups of 3, so 18 is 6 times as many as 3. Adding 6 to 3 gives only 9.

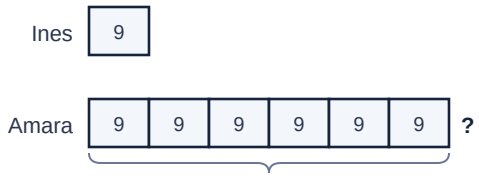
3. Which sentence describes the equation 24 = 8 × 3?

A 24 is 8 more than 3 **B** 24 is 8 times as many as 3 **C** 8 is 3 times as many as 24

D 3 is 8 times as many as 24

> **Answer: B** 24 is 8 times as many as 3
> **Why:** The equation 24 = 8 × 3 says that 24 is 8 groups of 3, so 24 is 8 times as many as 3. Adding 8 to 3 gives only 11.

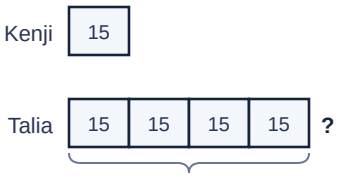
4. Ines has 9 seeds. Amara has 6 times as many seeds as Ines. How many seeds does Amara have? Use the tape diagram to help.



A 15 **B** 48 **C** 45 **D** 54

> **Answer: D** 54
> **Why:** "6 times as many" means 6 groups of Ines's 9, so multiply: 6 × 9 = 54. Adding 6 would answer a "more than" question instead.

5. Look at the tape diagram. What amount does Talia's bar show?



A 75 **B** 60 **C** 19 **D** 61

> **Answer: B** 60
> **Why:** Talia's bar has 4 boxes and each box is 15, so it shows 4 × 15 = 60. That makes Talia's amount 4 times as many as Kenji's.

6. A guitar costs $24. A songbook costs $6. The guitar costs how many times as much as the songbook?

A 4 **B** 30 **C** 5 **D** 18

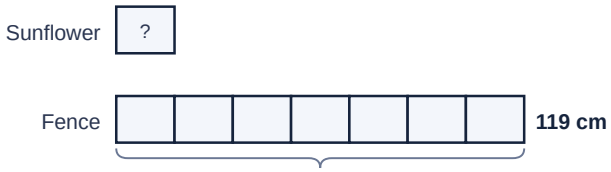
> **Answer: A** 4
> **Why:** Divide to find how many groups of $6 fit in $24: 24 ÷ 6 = 4. So the guitar costs 4 times as much.

7. A bike costs $20. A helmet costs $4. The bike costs how many times as much as the helmet?

A 4 **B** 3 **C** 16 **D** 5

> **Answer: D** 5
> **Why:** Divide to find how many groups of $4 fit in $20: 20 ÷ 4 = 5. So the bike costs 5 times as much.

8. The fence is 119 centimeters tall. It is 7 times as tall as the sunflower. How tall is the sunflower? Use the tape diagram to help.



A 15 centimeters **B** 16 centimeters **C** 17 centimeters **D** 7 centimeters

> **Answer: C** 17 centimeters
> **Why:** The fence is 7 equal parts, each as tall as the sunflower, so divide: 119 ÷ 7 = 17. Multiplying would make the shorter object taller, which cannot be right.

9. Pia's number is 9 times as many as 4. Ray's number is 4 times as many as 9. Which is true?

A The numbers are equal. **B** Ray's number is greater. **C** Pia's number is greater.

D Pia's number is 5 more than Ray's.

> **Answer: A** The numbers are equal.
> **Why:** Pia's number is 9 × 4 = 36 and Ray's number is 4 × 9 = 36. You can multiply in either order and get the same product.

10. Kai says, "6 times as many as 5 is 11." What mistake did Kai make?

A He added instead of multiplying. The answer is 30.

B He multiplied instead of adding. The answer is 11. **C** He should have divided. The answer is 1.

D He made no mistake.

> **Answer: A** He added instead of multiplying. The answer is 30.
> **Why:** 6 + 5 = 11 answers "6 more than 5." "6 times as many as 5" means 6 groups of 5, and 6 × 5 = 30.

④ You Try: 10 questions

Now your student works alone. Check answers in the Answer Key at the end of this topic. Score: ____ / 10

1. Marco has 9 postcards. Tomas has 4 times as many postcards as Marco. How many postcards does Tomas have?

A 32 **B** 36 **C** 27 **D** 13

2. Which sentence describes the equation 21 = 7 × 3?

A 3 is 7 times as many as 21 **B** 21 is 7 more than 3 **C** 7 is 3 times as many as 21

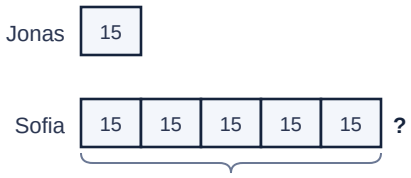
D 21 is 7 times as many as 3

3. Which sentence describes the equation 36 = 9 × 4?

A 36 is 9 more than 4 **B** 36 is 9 times as many as 4 **C** 9 is 4 times as many as 36

D 4 is 9 times as many as 36

4. Look at the tape diagram. What amount does Sofia's bar show?



A 75 **B** 70 **C** 60 **D** 20

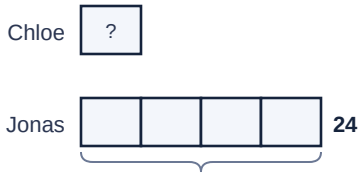
5. Bruno scored 48 points. Tariq scored 6 points. How many times as many points did Bruno score as Tariq?

A 54 **B** 8 **C** 7 **D** 42

6. Which equation finds n, the number that is 4 times as many as 10?

A 4 = n × 10 **B** n = 4 × 10 **C** 10 = 4 × n **D** n = 4 + 10

7. Jonas collected 24 buttons. That is 4 times as many buttons as Chloe collected. How many buttons did Chloe collect? Use the tape diagram to help.



A 6 **B** 5 **C** 28 **D** 20

8. A school has 48 tablets. That is 6 times as many as the number of laptops. How many more tablets than laptops does the school have?

A 54 **B** 42 **C** 8 **D** 40

9. Which is greater: 4 times as many as 9, or 9 more than 24?

A 9 more than 24 **B** 4 times as many as 9 **C** They are equal **D** You cannot tell

10. The blue ribbon is 8 inches long. The red ribbon is 7 times as long as the blue ribbon. How much longer is the red ribbon than the blue ribbon?

A 15 inches **B** 63 inches **C** 48 inches **D** 56 inches

TOPIC 1 · ANSWER KEY

Times as many: comparing with multiplication: Answers and explanations

① Quick Check

1. Which sentence describes the equation 20 = 5 × 4?
   A 20 is 5 times as many as 4
   The equation 20 = 5 × 4 says that 20 is 5 groups of 4, so 20 is 5 times as many as 4. Adding 5 to 4 gives only 9.
2. Which sentence describes the equation 72 = 8 × 9?
   B 72 is 8 times as many as 9
   The equation 72 = 8 × 9 says that 72 is 8 groups of 9, so 72 is 8 times as many as 9. Adding 8 to 9 gives only 17.
3. Which sentence describes the equation 24 = 6 × 4?
   B 24 is 6 times as many as 4
   The equation 24 = 6 × 4 says that 24 is 6 groups of 4, so 24 is 6 times as many as 4. Adding 6 to 4 gives only 10.
4. Tomas has 12 stickers. Jonas has 6 times as many stickers as Tomas. How many stickers does Jonas have?
   A 72
   "6 times as many" means 6 groups of Tomas's 12, so multiply: 6 × 12 = 72. Adding 6 would answer a "more than" question instead.
5. The sunflower is 27 centimeters tall. The fence is 5 times as tall as the sunflower. How tall is the fence?
   C 135 centimeters
   "5 times as tall" means 5 copies of 27 centimeters end to end, so multiply: 5 × 27 = 135. Adding 5 would only add 5 centimeters.
6. A desk costs $40. A lamp costs $8. The desk costs how many times as much as the lamp?
   A 5
   Divide to find how many groups of $8 fit in $40: 40 ÷ 8 = 5. So the desk costs 5 times as much.
7. Noor planted 96 seeds. Dev planted 12 seeds. How many times as many seeds did Noor plant as Dev?
   A 8
   Ask how many groups of 12 make 96: 96 ÷ 12 = 8. So Noor has 8 times as many; the difference 84 answers "how many more" instead.
8. Dalia collected 16 pencils. That is 2 times as many pencils as Yuki collected. How many pencils did Yuki collect? Use the tape diagram to help.
   B 8
   Dalia's 16 is 2 equal groups of Yuki's amount, so divide: 16 ÷ 2 = 8. Check: 2 × 8 = 16.
9. A building is 96 feet tall. It is 8 times as tall as a tree. The tree is 3 times as tall as a bush. How tall is the bush?
   B 4 feet
   The tree is 96 ÷ 8 = 12 feet tall. The bush is 12 ÷ 3 = 4 feet tall. 12 feet is the tree, not the bush.
10. A puppy weighs 6 pounds. A dog weighs 5 times as much as the puppy. A pony weighs 8 times as much as the dog. How much does the pony weigh?
    D 240 pounds
    The dog weighs 5 × 6 = 30 pounds. The pony weighs 8 × 30 = 240 pounds.

④ You Try

1. Marco has 9 postcards. Tomas has 4 times as many postcards as Marco. How many postcards does Tomas have?
   B 36
   "4 times as many" means 4 groups of Marco's 9, so multiply: 4 × 9 = 36. Adding 4 would answer a "more than" question instead.
2. Which sentence describes the equation 21 = 7 × 3?
   D 21 is 7 times as many as 3
   The equation 21 = 7 × 3 says that 21 is 7 groups of 3, so 21 is 7 times as many as 3. Adding 7 to 3 gives only 10.
3. Which sentence describes the equation 36 = 9 × 4?
   B 36 is 9 times as many as 4
   The equation 36 = 9 × 4 says that 36 is 9 groups of 4, so 36 is 9 times as many as 4. Adding 9 to 4 gives only 13.
4. Look at the tape diagram. What amount does Sofia's bar show?
   A 75
   Sofia's bar has 5 boxes and each box is 15, so it shows 5 × 15 = 75. That makes Sofia's amount 5 times as many as Jonas's.
5. Bruno scored 48 points. Tariq scored 6 points. How many times as many points did Bruno score as Tariq?
   B 8
   Ask how many groups of 6 make 48: 48 ÷ 6 = 8. So Bruno has 8 times as many; the difference 42 answers "how many more" instead.
6. Which equation finds n, the number that is 4 times as many as 10?
   B n = 4 × 10
   The unknown n is 4 groups of 10, so n = 4 × 10, which makes n = 40. The equation n = 4 + 10 would describe "4 more than 10".
7. Jonas collected 24 buttons. That is 4 times as many buttons as Chloe collected. How many buttons did Chloe collect? Use the tape diagram to help.
   A 6
   Jonas's 24 is 4 equal groups of Chloe's amount, so divide: 24 ÷ 4 = 6. Check: 4 × 6 = 24.
8. A school has 48 tablets. That is 6 times as many as the number of laptops. How many more tablets than laptops does the school have?
   D 40
   Laptops: 48 ÷ 6 = 8. Then 48 - 8 = 40 more tablets. 8 is the number of laptops, and 42 comes from 48 - 6, which mixes up the two kinds of comparison.
9. Which is greater: 4 times as many as 9, or 9 more than 24?
   B 4 times as many as 9
   4 times as many as 9 is 4 × 9 = 36. 9 more than 24 is 24 + 9 = 33. 36 is greater than 33.
10. The blue ribbon is 8 inches long. The red ribbon is 7 times as long as the blue ribbon. How much longer is the red ribbon than the blue ribbon?
    C 48 inches
    The red ribbon is 7 × 8 = 56 inches long. 56 - 8 = 48, so it is 48 inches longer. 56 inches is the red ribbon's length, not how much longer it is.

THE FULL WORKBOOK

Keep going with the full Math workbook

You just tried one topic. The full Grade 4 workbook has every topic below, each with a Quick Check, a lesson, We Do It Together, up to 90 You Try questions, Show What You Know and a full answer key.

1. Times as many: comparing with multiplication 4.OA.A
2. Factors and multiples 4.OA.B
3. Number and shape patterns 4.OA.C.5
4. Place value to 1,000,000 4.NBT.A
5. Adding and subtracting big numbers 4.NBT.B.4
6. Multi-digit multiplication 4.NBT.B.5
7. Long division 4.NBT.B.6
8. Equivalent fractions 4.NF.A
9. Adding fractions and mixed numbers 4.NF.B
10. Decimals 4.NF.C
11. Unit conversions 4.MD.A
12. Line plots with fractions 4.MD.B.4
13. Angles 4.MD.C
14. Lines, angles and symmetry 4.G

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