

3:1 There are five teams in the volleyball league. Every team has six players. How many players are in the volleyball league?
Equation model: _____
Answer: _____

3:4 Jasmine bought 45 corn seeds. She arranged the seeds into piles of 9 seeds each. How many piles were there?
Equation model: _____
Answer: _____



3:9 Our class painted pictures. The teacher will hang the pictures on 4 bulletin boards. The teacher will hang the same number of pictures on each board. How many pictures will be on each board? There are 32 pictures to hang.

3:2 The picture shows a dog sleeping on a rug. The rug design is a rectangular array of squares with a dot in each square.



Below are four expressions. One expression equals the total number of dots in the rug design. Which expression equals the total number of dots in the rug design? Tell how you decided.

12×14 , 11×14 , 12×15 , 11×15

3:5 Our class picked up litter on the playground. One student wrote tally marks to record the things we picked up.

Paper IIII IIII IIII IIII
Plastic IIIII IIIII IIIII IIIII IIIII
Glass IIII IIII
Garbage IIIII IIIII IIIII IIIII IIIII

Show the data another way by drawing a scaled picture graph in which 1 picture stands for 10 things picked up.

3:6 Using what you know about fractions, decide which is greater, $\frac{1}{73}$ or $\frac{1}{41}$. Tell how you decided.

3:7 Here is a list of numbers. Where does each number belong on the number line?
 $\frac{1}{2}$, $\frac{1}{4}$, 2, $\frac{5}{4}$, $\frac{2}{2}$, $\frac{3}{2}$, $\frac{6}{4}$, $\frac{2}{4}$, $\frac{3}{1}$
Draw a dot to show the location of each number. Label each dot. The first number in the list has been located for you.



3:8 (1) Name two attributes that are shared by triangles and squares.
(2) Name a category of shapes that includes triangles and squares and also includes other shapes that have both of the attributes you named.

3:10 Alice forgot what 7×8 equals. Alice knows that $5 \times 8 = 40$ and $2 \times 8 = 16$.
(1) Write a sentence to tell Alice how she can find the value of 7×8 by using the two facts she knows.
(2) Draw a diagram that could help Alice understand why your method works.
(3) Choose two numbers other than 7 and 8, and try using your method to multiply them. Will your method work for any pair of factors? Say why you think so.

3:11 Steven, Hawa, and 4 more friends went to the park. Steven brought 24 water balloons. Hawa brought 24 water balloons. Nobody else brought water balloons. The 6 friends shared all the water balloons equally. How many water balloons did each friend get?



3:12 Write the value of each product. Use as much time as you need. If you "just knew it," then draw a check mark, like this:
 2×2 4✓



[Click here for student handout 3:12](#)

3:13 Write the number that makes each equation true. Use as much time as you need.



[Click here for student handout 3:13](#)

3:14 Write the sums and differences.

				Mentally
	With pencil and paper			800 – 300
351	264	625	831	240 + 540
<u>+ 472</u>	<u>+ 438</u>	<u>– 261</u>	<u>– 444</u>	365 – 165
				612 – 13

Math Milestones™ Task List — Grade 3

The 14 Math Milestones™ tasks for grade 3 have been carefully crafted to embody grade 3 mathematics on one page.

3:1 Volleyball Players	C A	3.OA.A.3, 3.OA.A
3:2 Hidden Rug Design	C	3.OA.A.1
3:3 Length and Area Quantities	C	3.MD.C
3:4 Corn Seeds	C A	3.OA.A.3, 3.OA.A
3:5 Playground Cleanup	A	3.MD.B.3
3:6 Unit Fraction Ideas	C	3.NF.A
3:7 Locating Numbers on a Number Line	C	3.NF.A
3:8 Shape Attributes and Categories	C	3.G.A.1
3:9 Bulletin Board Pictures	C A	3.OA.A.3, 3.OA.A
3:10 Alice's Multiplication Fact	C P	3.OA.B.5, 3.MD.C.7b
3:11 Water Balloons	A	3.OA.D.8
3:12 Products of Single-Digit Numbers	P	3.OA.C.7
3:13 Fluency within the Multiplication Table	P	3.OA.C.7, 3.OA.A.4, 3.OA.A, B, C
3:14 Fluency within 1000 (Add/Subtract)	P	3.NBT.A.2

C = Task has a conceptual focus.

P = Task has a procedural skill & fluency focus.

A = Task has an application focus.

Standards for Mathematical Practice

MP.1 Make sense of problems and persevere in solving them.	3:1, 3:4, 3:6–12
MP.2 Reason abstractly and quantitatively.	3:1–4, 3:5, 3:7, 3:9
MP.3 Construct viable arguments and critique the reasoning of others.	3:2, 3:6, 3:10
MP.4 Model with mathematics.	3:1, 3:4, 3:5, 3:9, 3:11
MP.5 Use appropriate tools strategically.	3:3, 3:7
MP.6 Attend to precision.	3:2, 3:3, 3:5, 3:7, 3:12–14
MP.7 Look for and make use of structure.	3:2, 3:3, 3:6–8, 3:10, 3:13, 3:14
MP.8 Express regularity in repeated reasoning.	3:6, 3:10

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4:1 A tablespoon holds 15 ml of olive oil, which is 3 times as much as a teaspoon holds. How many ml of olive oil does a teaspoon hold?
Equation model: _____
Answer: _____

4:2

(1) Find the three missing lengths and write them on the diagram. Compare answers with a classmate.

(2) What is the total area of the diagram?

(3) Look for connections between the diagram and the division problem. What connections can you see?

137
7 959
-700
259
-210
49
-49
0

4:3 Everyone in class measured the length of their pencil. Here are the measurements:

(1) How many pencils were measured?
(2) How much longer was the longest pencil than the shortest pencil?
(3) Could two of the pencils be laid end to end to make a total length of 1 foot?

4:4

(1) Compare $\frac{5}{9}$ to $\frac{4}{7}$. First do it by making equal denominators. Then do it by making equal numerators.

(2) Ariana said, " $\frac{300}{400}$ looks greater than $\frac{3}{4}$. How can they be the same size?" Write or say an explanation that could help Ariana understand why $\frac{300}{400}$ and $\frac{3}{4}$ are the same size.

(3) Which is closer to 1 on a number line, $\frac{4}{5}$ or $\frac{5}{4}$? Tell how you decided. Draw a number line and show $\frac{4}{5}$ and $\frac{5}{4}$ accurately on the number line.

4:5 (1a–f) Write the values of the products. Compare answers with a classmate.

(1g) Which answer is twice as much as the answer for (e)?

(1h) Which answer is six times as much as the answer for (a)?

(1i) Which two answers are equal?

(2) Zoe was reading her math book. She saw the equation $6 \times (4 + \frac{1}{2}) = 24 + 3$. She said, "I don't get it—where did the 24 and the 3 come from?" Write an explanation that could answer Zoe's question.

$4 \times \frac{1}{7} = \underline{\hspace{1cm}}$ (a)
 $6 \times \frac{4}{7} = \underline{\hspace{1cm}}$ (b)
 $86 \times \frac{1}{86} = \underline{\hspace{1cm}}$ (c)
 $6 \times \frac{8}{2} = \underline{\hspace{1cm}}$ (d)
 $9 \times \frac{1}{9} = \underline{\hspace{1cm}}$ (e)
 $9 \times \frac{2}{9} = \underline{\hspace{1cm}}$ (f)

4:6 Grandpa took a jar of pennies to the bank. He said, "I'd like nickels for this, please." The bank teller poured the pennies into a counting machine. "Eighty-seven dollars and forty-two cents," said the teller. (1) How many nickels did Grandpa get? (2) Check your answer with an estimate.

4:7 Write the values of the expressions. Read each completed equation aloud.

3 fifths + 2 fifths = _____

$\frac{1}{10} + \frac{3}{100} = \underline{\hspace{1cm}}$ (fraction)
 = _____ (decimal)

$\frac{6}{25} + \frac{6}{25} = \underline{\hspace{1cm}}$
 $\frac{1}{8} + \frac{5}{8} - \frac{3}{8} = \underline{\hspace{1cm}}$

4:8 L is a line, R is a ray, and T is a triangle. True or false:

(1) Line L is a line of symmetry for triangle T .

(2) Line L intersects ray R .

(3) Triangle T has two angles measuring less than 90 degrees.

4:9 In gym it was fitness day. Students ran laps around the gym.

I ran $1\frac{2}{3}$ more laps than Catherine.

I ran $6\frac{1}{3}$ laps.

How many laps did Catherine run?

4:10 Write the values of the products and quotients. Check the quotients by multiplying.

Mentally	40 × 20	With pencil and paper
	30 × 11	6,132 48
	12 × 60	5 × 19 × 6 × 39 7 8,722
	480 ÷ 8	

4:11 A cook in the school kitchen uses 6 oz of cheese to make a pizza. The kitchen has 45 lb of cheese. How many pizzas will that make?

4:12 The pickup truck can carry $1\frac{3}{5}$ tons. The super hauler truck can carry 300 times as much. How many tons can the super hauler truck carry?

4:13

(1) A red rectangle has length $L = 12$ in and width $W = 6$ in. Use the formula $A = L \times W$ to find the area of the red rectangle.

(2) A blue rectangle has length 1 ft and width $\frac{1}{2}$ ft. Draw a picture to show that two copies of the blue rectangle make one square foot. Based on your picture, what is the area of the blue rectangle?

(3) Do the red rectangle and the blue rectangle have equal areas? Tell how you decided.

4:14 $540,909 + 87,808 - 5,864 + 2,556 = ?$

Math Milestones™ Task List — Grade 4

The 14 Math Milestones™ tasks for grade 4 have been carefully crafted to embody grade 4 mathematics on one page.

4:1 A Tablespoon of Oil	C A	4.OA.A.2
4:2 Multi-Digit Division Concepts	C	4.NBT.B.6
4:3 Pencil Data	A	4.MD.B.4
4:4 Comparing Fractions with Equivalence	C	4.NF.A
4:5 Fraction Products and Properties	C	4.NF.B.4a, 4b
4:6 Jar of Pennies	A P	4.OA.A.3
4:7 Fraction Sums and Differences	C P	4.NF.B.3a–c, 4.NF.C.5, 6
4:8 Shapes with Given Positions	C	4.MD.C, 4.G.A
4:9 Fitness Day	C A	4.NF.B.3d
4:10 Calculating Products and Quotients	P	4.NBT.B
4:11 School Kitchen	A	4.MD.A.2, 4.NBT.B.5
4:12 Super Hauler Truck	C A	4.NF.B.4c, 4.OA.A.2
4:13 Area Units	C	4.MD.A.3
4:14 Fluency with Multi-Digit Sums and Differences	P	4.NBT.B.4

C = Task has a conceptual focus.

P = Task has a procedural skill & fluency focus.

A = Task has an application focus.

Standards for Mathematical Practice

MP.1 Make sense of problems and persevere in solving them.	4:6, 4:11
MP.2 Reason abstractly and quantitatively.	4:1, 4:2, 4:3, 4:6
MP.3 Construct viable arguments and critique the reasoning of others.	4:4, 4:5, 4:13
MP.4 Model with mathematics.	4:1, 4:3, 4:6, 4:9, 4:11, 4:12
MP.5 Use appropriate tools strategically.	4:5(2), 4:8
MP.6 Attend to precision.	4:4, 4:8, 4:10, 4:13, 4:14
MP.7 Look for and make use of structure.	4:2, 4:5, 4:7, 4:8, 4:10, 4:14
MP.8 Express regularity in repeated reasoning.	4:4, 4:5, 4:7

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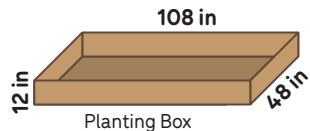
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5:1 A school needed 240 four-packs of juice boxes for a field trip. However, the school accidentally bought 240 six-packs of juice boxes. How many extra juice boxes did the school buy?

5:2 After a hurricane, the 12 residents of a nursing home didn't have any clean water to drink. Their neighbors donated 40 gallons of bottled water, which would provide ___ gallons for each resident.



5:3 A neighborhood garden will have 6 wooden planting boxes. Every box will have the same shape (see diagram). Soil can be bought by the truckload; a truckload is 54 ft³ of soil. How many truckloads of soil will fill all of the boxes?



5:4 (1) Circle T for true or F for false.

(a) 9 thousandths + 5 hundredths > 3 hundredths + 2 tenths	T F
(b) 92 hundredths + 4 thousandths > 0.924	T F
(c) 0.456 < 0.5	T F

(2) Write each number in the requested form.

(a) 7 thousandths + 5 tenths = ____ (decimal)

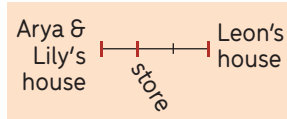
(b) 0.1 tenths = ____ (decimal)

(c) $\frac{2}{100} + \frac{5}{1000} =$ ____ (decimal)
 = ____ (fraction in lowest terms)

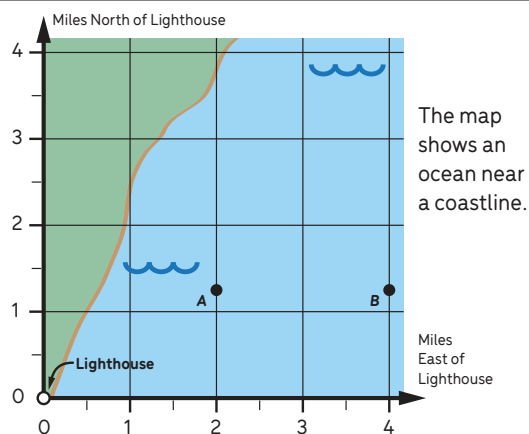
5:5 Write the requested values.

4087 × 53 = ?	$\frac{1}{10} \div 10 = ?$	0.4 × 0.9 = ?
246 × 914 = ?	$\frac{7}{8} \times \frac{5}{3} = ?$	0.75 ÷ 0.01 = ?
9744 ÷ 12 = ?	8 × ? = 73	0.63 ÷ 0.3 = ?
1461 ÷ 6 = ?	$3 \div \frac{1}{8} = ?$	0.86 + 0.4 = ?
4 - (8 - 4) = ?	$\frac{1}{2} + \frac{1}{3} - \frac{1}{5} = ?$	0.72 - 0.17 = ?
	$\frac{1}{3} \div (6 \times 5) = ?$	0.02 + 0.2 = ?
		0.8 - 0.55 = ?
		637 - 1.31 = ?

5:6 (1) Arya and Lily's house is $\frac{1}{5}$ mile from the store. (a) Arya ran $\frac{1}{3}$ of the way from her house to the store. How far, in miles, did Arya run? (b) Lily ran $\frac{2}{3}$ of the way from her house to the store. How far, in miles, did Lily run? (2) It is $\frac{2}{5}$ mile from Leon's house to the store. (a) Leon ran $\frac{1}{3}$ of the way from his house to the store. How far, in miles, did Leon run? (b) Compare how far Leon and Lily ran; what do you notice, and why is it true?



5:7 The map shows an ocean near a coastline. Shipwrecks are at locations A (2, 1 $\frac{1}{4}$) and B (4, 1 $\frac{1}{4}$). Shipwrecks are also at locations C (4, 3 $\frac{1}{2}$) and D (2, 3 $\frac{1}{2}$). (1) Mark C and D on the map and shade rectangle ABCD. (2) Some believe there is sunken treasure in the region you shaded. How large is that region in mi²?



5:9 On Saturday there was a walkathon. Catherine I walked $\frac{1}{3}$ mile farther than Leslie. I walked $1\frac{1}{4}$ mile. How many miles did Leslie walk?



I walked $\frac{1}{3}$ mile farther than Leslie.

I walked $1\frac{1}{4}$ mile.

5:10 (1) Solve: $\frac{1}{3} = 0.1 + ?$
 (2) Is there a number greater than $\frac{1}{5}$ and less than $\frac{1}{4}$? If you think so, find such a number. If you think there is no such number, explain why.
 (3) Show one of the above problems and its solution on a number line.

5:11 Juliet said, "I'm thinking of a rectangle. Its area is 1 square unit. Its perimeter is more than 1 million units." (1) Is Juliet thinking of something possible or impossible? Use math to decide for sure. (2) Explain your reasoning to your classmates. Revise your explanation based on suggestions from your classmates.

5:12 Before it rained, the teacher went outside and placed identical baking pans on the ground. After it rained, the teacher brought the pans inside, and students measured how much water was collected in each pan.

Water Collected (liters)

If all the water collected were shared equally among the pans, how much water would be in each pan?

5:13 In a snack shop there is a frozen yogurt machine. When there is 3 l of frozen yogurt in the machine, the machine is $\frac{1}{3}$ full. How much frozen yogurt is in the machine when it is $\frac{1}{4}$ full?

5:14 Brandon was reading his math book. He saw the equation $\frac{3}{4} \times (4 + \frac{1}{2}) = 3 + \frac{3}{8}$. He said, "I don't get it—where did the 3 and the $\frac{3}{8}$ come from?" Write an explanation that could answer Brandon's question.

Math Milestones™ Task List — Grade 5

The 14 Math Milestones™ tasks for grade 5 have been carefully crafted to embody grade 5 mathematics on one page.

5:1 Juice Box Mixup	C A	5.OA.A.2, 5.NBT.B.5
5:2 Water Relief	C A	5.NF.B.3
5:3 Neighborhood Garden	A	5.MD.A, B
5:4 Place Value to Thousandths	C	5.NBT.A
5:5 Calculating	P	5.NBT.B, 5.NF.A, B
5:6 Corner Store	C A	5.NF.B.4a, 5.NF.B.6
5:7 Shipwrecks	C A	5.NF.B.4b, 5.G.A
5:8 Alana's New Shape Category	C	5.G.B
5:9 Walkathon	A P	5.NF.A.1, 2
5:10 Number System, Number Line	C	5.NF.A.1
5:11 Juliet's Rectangle	C	5.NF.B
5:12 Rain Measurements	A	5.MD.B
5:13 Frozen Yogurt Machine	A	5.NF.B.6, 7
5:14 Brandon's Equation	C	5.NF.B.4a

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P = Task has a procedural skill & fluency focus.

A = Task has an application focus.

Standards for Mathematical Practice

MP.1 Make sense of problems and persevere in solving them.	5:3, 5:6, 5:10, 5:11, 5:13
MP.2 Reason abstractly and quantitatively.	5:2, 5:6, 5:7, 5:9, 5:11–13
MP.3 Construct viable arguments and critique the reasoning of others.	5:6, 5:8, 5:10, 5:11, 5:14
MP.4 Model with mathematics.	5:1–3, 5:6, 5:7, 5:9, 5:12, 5:13
MP.5 Use appropriate tools strategically.	5:10, 5:13, 5:14
MP.6 Attend to precision.	5:4, 5:5, 5:8, 5:11
MP.7 Look for and make use of structure.	5:1, 5:4–7, 5:14
MP.8 Express regularity in repeated reasoning.	5:6, 5:8, 5:11

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