

Final Test Math revision
Term 1
For Grade 3

Question*		Lesson Name**	Reference(s) in the Student Book (English Version)	
			المرجع في كتاب الطالب (النسخة الانجليزية)	
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*	Questions might appear in a different order in the actual exam, or on the exam paper.			
*	قد تظهر الأسئلة بترتيب مختلف في الامتحان الفعلي، أو على ورقة الامتحان .			
**	As it appears in the textbook,and LMS.			
**	كما وردت في كتاب الطالب وLMS .			

Use a number line to round.

- 1.**
- Round 27 to the nearest 10.

- 2.**
- Round 896 to the nearest 10.

**Use place value to round.**

- 3.**
- Round 48 to the nearest 10.

- 4.**
- Round 273 to the nearest 10.

Use a number line to round. Show your work.

- 5.**
- Round 436 to the nearest 100.

- 6.**
- Round 672 to the nearest 100.

436 rounded to the nearest 100
is

672 rounded to the nearest 100
is

- 7.**
- How can the number 78 round to 80 and 100? Explain.

- 8.**
- A number rounded to the nearest 10 is 240. What number could it be?
-

- 7.**
- Circle the choice that correctly shows rounding to the nearest 10. (Lesson 2-2)

784 → 785

563 → 560

492 → 500

535 → 530

How can you make the equation true?

1. $218 + 325 = 325 + \underline{\hspace{2cm}}$ 2. $465 + \underline{\hspace{2cm}} = 78 + 465$
3. $529 + 407 = \underline{\hspace{2cm}} + 529$ 4. $\underline{\hspace{2cm}} + 93 = 93 + 505$

5. Mauricio had a sale. The table shows the number of items he sold each day. Which expressions show how to find the total number of items Mauricio sold? Choose all that apply.

- A. $42 + 67 + 58$
 B. $67 - 58 + 42$
 C. $58 + 42 + 67$
 D. $58 + 67 + 24$

Items Sold	
Monday	58
Tuesday	67
Wednesday	42

6. How can you group the addends to make it easier find the sum? Explain your thinking.

$$372 + 264 + 228$$

Complete the following using properties of addition. (Lesson 2-4)

8. $289 + 621 = 621 + \underline{\hspace{2cm}}$

9. $78 + \underline{\hspace{2cm}} + 212$
 $= 418 + 212 + 78$

1. $247 + 564 =$ _____

2.
$$\begin{array}{r} 815 \\ + 148 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 729 \\ + 148 \\ \hline \end{array}$$

4. $327 + 176 =$ _____

5. Whitney uses partial sums to add. Look at her work to determine which two numbers were in her original equation.

$$\text{_____} + \text{_____} = 598$$

$$200 + 300 = 500$$

$$10 + 80 = 90$$

$$6 + 2 = 8$$

$$500 + 90 + 8 = 598$$

6. How can you determine which addends are in the original equation by looking at the partial products?

7. Tyrone spent 172 days in school last year. If he attends school the same number of days next year, how many days will he spend in school in two years?

$$\begin{aligned}
 8. \quad & 475 + 325 = 800 \\
 & 400 + 300 = 700 \\
 & 70 + 20 = 90 \\
 & 5 + 5 = 10 \\
 & 700 + 90 + 10 = 800
 \end{aligned}$$

$$\begin{array}{r}
 9. \quad 238 \\
 +271 \\
 \hline
 400 \\
 100 \\
 + 9 \\
 \hline
 509
 \end{array}$$

10. Eleanor’s watch shows her steps before lunch. Then she took 486 more steps. How many total steps did she take?



11. **Error Analysis** Amal adds $378 + 141$. She decomposes each number and adds $300 + 100 = 400$. She writes $378 + 141 = 400$. How can you explain her mistake?

12. **Extend Your Thinking** How can you solve $249 + 401 + 276$ using partial sums? Show your work.

How can you decompose the number in 2 ways?

1. 367

2. 876

How can you decompose one number to subtract? Why did you choose that way?

3. 495 – 122

4. 639 – 370

How can you find the difference? Show the strategy you used.

5. $284 - 182 =$ _____

6. _____ $= 333 - 114$

7. $502 - 382 =$ _____

8. $744 - 466 =$ _____

9. Error Analysis Juan subtracts $345 - 101$. He decomposes 101 into 100 and 10 and subtracts the parts from 345. How can you help him understand his mistake?

10. The table shows the number of people who attended the school fun fair each day. Show a strategy to find the difference between the greatest and least number of people.

Fun Fair Visitors	
Day	Number of People
Thursday	103
Friday	168
Saturday	257
Sunday	224

11. A baker bakes 268 bread rolls. 155 are cinnamon rolls. The rest are plain rolls. How many plain rolls does she bake?

12. Extend Your Thinking Ana subtracts $438 - 342$ by decomposing 342. She subtracts 2, then 300, and finally 40. Can she subtract the parts in any order? Explain your reasoning.

9. You can adjust $236 - 119$ different ways. How can you explain one way you can adjust and why the equation is easier?

10. Melissa and Juan are finding $129 + 257$ by adjusting. Melissa tries solving using $130 + 258 = 388$ and Juan solves it using $130 + 256 = 386$. Which sum is correct? Explain.

11. **STEM Connection** Saffron completed 851 orders of pastries her first year. After her second year, she completed 926 orders. How many more pastry orders did she complete in her second year than in her first year?



12. **Extend Your Thinking** Yazmin adds $457 + 251$. She adjusts 251 to 250, but forgets to adjust 457. She adds $457 + 250 = 707$. How can she adjust the sum to fix her mistake? Explain your reasoning.

15. Gabe is trying to solve $246 + 367$. Which equation shows how he could adjust the addends to find the sum?

(Lesson 2-8)

A. $250 + 360 = ?$

B. $250 + 370 = ?$

C. $250 + 363 = ?$

D. $250 + 371 = ?$

Represent and solve the problem. Use letters for the unknowns.

5. Sam and Ben take turns driving. They traveled 417 miles in May and 454 miles in June. If Sam drove 502 of the miles, how many miles did Ben drive?
6. Jaya earned \$187 babysitting. She bought a wireless speaker for \$129 and a carrying case for \$26. How much money does she have left?
7. Judy has 323 beads. Sarah has 142 more beads than Judy. How many beads do they have together?

19. Enrique read 249 pages of his book in June and 227 pages of his book in July. The book has a total of 638 pages and Enrique wants to know how many pages he has left to read. (Lesson 2-12)

How many? Fill in the blanks.

1.



_____ equal groups of _____

2.



_____ equal groups of _____

How can you represent the equal groups?

3. 2 equal groups of 7

4. 4 equal groups of 5

How many objects?

5. 4 equal groups of 4 pencils

$4 \times 4 =$ _____
_____ pencils

6. 3 equal groups of 2 mittens

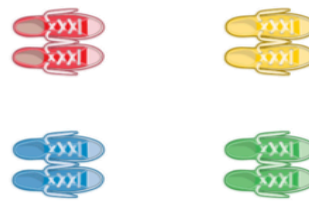
$3 \times 2 =$ _____
_____ mittens

What equation represents the equal groups?

7.



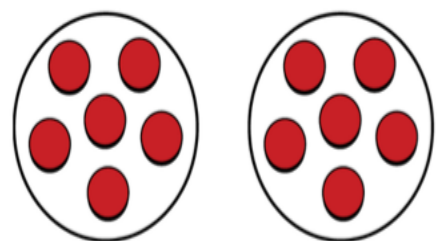
8.



9. **STEM Connection** Finn has 3 construction sites. He assigns 8 workers to each site. How many workers does he assign? Explain how you know.



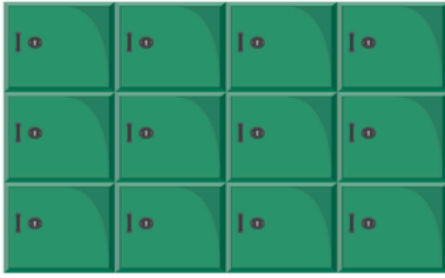
7. How can you represent these groups of counters? (Lesson 3-1)



_____ $\times$ _____ = _____

How many? Complete the equations.

1.



$$4 + 4 + 4 = \underline{\hspace{2cm}}$$

$$3 \times 4 = \underline{\hspace{2cm}}$$

2.

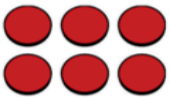


$$5 + 5 = \underline{\hspace{2cm}}$$

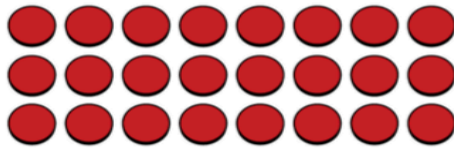
$$2 \times 5 = \underline{\hspace{2cm}}$$

Write one addition equation. Write one multiplication equation.

3.



4.



How can you draw an array to represent the equation?

5. $4 \times 4 = 16$

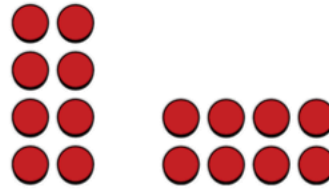
6. $3 \times 5 = 15$

10. What equation represents the stars shown? (Lesson 3-2)



$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

1. What two multiplication equations represent these arrays?



2. Sam says that 6×2 and 2×6 have the same product. Do you agree with Sam? Explain why or why not.

What makes the equation true? Fill in the blank.

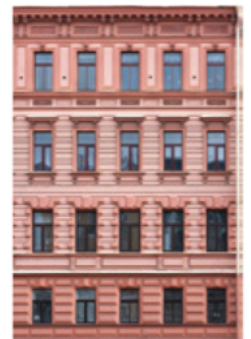
3. $5 \times 6 = 6 \times$ _____

4. $9 \times 0 =$ _____ $\times 9$

5. Use representations to show 2×3 is equal to 3×2 .

6. Use representations to show 1×4 is equal to 4×1 .

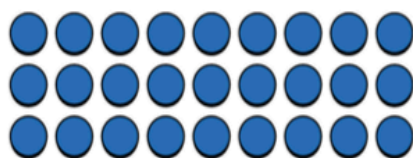
7. **STEM Connection** Finn's construction team just finished placing windows in the building. What two multiplication equations can represent the total number of windows in the front of the building?



8. How can you explain whether this statement is true or false?
 $7 \times 2 = 14$, so $14 \times 2 = 7$.
9. How does knowing the product of 9×6 help you find the product of 6×9 ?
10. Use 3, 30, and 10 to write 2 true multiplication equations.

11. Oliver has 3 sheets of stickers with 4 stickers on each sheet. Sara has 4 sheets of stickers with 3 stickers on each sheet. Who has more stickers? Explain.

12. **Extend Your Thinking** Explain how this array represents 9×3 and 3×9 .



Draw a representation and write an equation for each situation.

9. There are 25 crackers to be shared equally among 5 bowls.

10. STEM Connection The construction manager equally divides 24 bundles of lumber among 6 carpenters.



11. Emma picks 32 peaches. She needs 8 peaches for each batch of jam. If she makes 4 batches, will she have any peaches left over? Justify your answer.

12. Extend Your Thinking Ms. Bain has 3 art tables. She shares 27 markers equally among the tables so each student gets 3 markers. How many students sit at each table? Explain how you know.

12. Clara has 20 glue bottles to place at 5 tables. She will place the same number of bottles on each table.

Which equation represents the problem? (Lesson 3-4)

A. $5 \div 4 = 20$

B. $5 \div 20 = 4$

C. $4 \div 5 = 20$

D. $20 \div 5 = 4$

1. Byron is making loaves of bread. He uses 2 cups of flour for each loaf. Complete the table to show how many cups of flour he needs for each number of loaves.

Loaves of Bread	Cups of Flour
5	
6	
7	

2. Arya is buying balloons for her two brothers. She wants to give them both the same number of balloons. How can you write an equation to represent the total number of balloons Arya might buy?
3. Peter is cooking potatoes in a large pot. The recipe calls for 2 minutes of boiling for every pound of potatoes. How many minutes will it take Peter to cook 8 pounds of potatoes?
4. Draw a line to connect the related equations.
- $2 \times ? = 4$
 $2 \times ? = 10$
 $2 \times ? = 14$

$7 + 7 = ?$
 $2 + 2 = ?$
 $5 + 5 = ?$

How can you complete the equation?

5. $2 \times 9 = \underline{\hspace{2cm}}$

7. $6 \times 2 = \underline{\hspace{2cm}}$

9. $\underline{\hspace{2cm}} \times 2 = 6$

6. $\underline{\hspace{2cm}} = 2 \times 10$

8. $8 = \underline{\hspace{2cm}} \times 2$

10. $7 \times 2 = \underline{\hspace{2cm}}$

11. **STEM Connection** Matthew’s computer program has 6 lines of code. Grace’s computer program has double the number of lines of code as Matthew’s. How many lines of code does Grace’s program have?



14. **Extend Your Thinking** Sarah has 4 blocks. Frank has double that number of blocks. Zehra has double Frank’s number of blocks. How can you find the number of blocks Zehra has?

How can you use what you know about multiplication with 5 to answer the question?

1. What can you say about the products of $\times 5$ facts?

2. Sheila says that knowing 3×5 can help you remember 5×3 . Is she correct? Explain.

3. Marcel is decorating a poster with stickers. He arranges the stickers into 5 rows. Each row has the same number of stickers. How many stickers might Marcel have in all?

=====

How can you complete the equation?

4. $5 \times 9 =$ _____

5. _____ $= 5 \times 7$

6. $6 \times 5 =$ _____

7. $25 = 5 \times$ _____

8. $10 \times 5 =$ _____

9. $3 \times 5 =$ _____

10. _____ $\times 5 = 10$

11. $8 \times 5 =$ _____

12. Mary Lou does 5 jumping jacks. If she does the same number of jumping jacks for 4 days in a row, how many jumping jacks does Mary Lou do?

15. **Extend Your Thinking** Lee has 32 books. He says he can make 5 stacks of books with the same number of books in each stack. Is he correct? Explain.

How can you complete the equation?

1. $7 \times 1 = \underline{\hspace{2cm}}$

2. $0 = \underline{\hspace{2cm}} \times 1$

3. $4 \times \underline{\hspace{2cm}} = 0$

4. $\underline{\hspace{2cm}} \times 1 = 1$

5. $0 \times 6 = \underline{\hspace{2cm}}$

6. $8 = 1 \times \underline{\hspace{2cm}}$

7. Kelly and Yusif want to share a box of crackers. They open the box and share all of the crackers in the box. They each get 0 crackers. How many crackers were in the box?

8. Eli checks out some books from the library. He reads 1 book per day. How many days will it take Eli to read all his books?

9. Carter starts playing a new game. He completes 0 levels per day for a week. How many levels will Carter complete by the end of the week?

10. Mr. Mustafa buys 1 jersey for each player on his daughter's team. There are 9 players. How can you write an equation to find the number of jerseys he buys?

11. There are 3 bins. Each bin has 1 book. How can you write an equation to show the number of books there are?

12. Which equations are true? Circle all that are correct.

A. $6 \times 0 = 6$

B. $8 \times 1 = 2 \times 4$

C. $0 \times 3 = 9 \times 0$

D. $1 \times 10 = 5 \times 1$

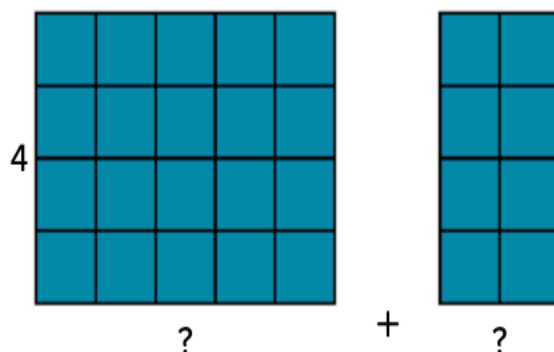
14. Extend Your Thinking Does the equation $1 \times 0 = ?$ follow the pattern of multiples of 0, multiples of 1, or both? Justify your reasoning.

1. How can you use the representation to decompose 7?

$$4 \times 7 = 4 \times \underline{\quad} + 4 \times \underline{\quad}$$

$$4 \times 7 = \underline{\quad} + \underline{\quad}$$

$$4 \times 7 = \underline{\quad}$$



2. How can you decompose 9×6 ?

$$9 \times 6 = \underline{\quad} \times \underline{\quad} + \underline{\quad} \times \underline{\quad}$$

$$9 \times 6 = \underline{\quad} + \underline{\quad}$$

$$9 \times 6 = \underline{\quad}$$

What number makes the equation true?

3. $? \times 7 = 3 \times 7 + 3 \times 7$

$$? = \underline{\quad}$$

4. $7 \times ? = 5 \times 8 + 2 \times 8$

$$? = \underline{\quad}$$

5. $1 \times 9 + 5 \times 9 = 9 \times ?$

$$\underline{\quad} = ?$$

6. $6 \times 2 + 6 \times 2 = 6 \times ?$

$$\underline{\quad} = ?$$

How can you decompose one of the factors to find the product?

7. $8 \times 6 = \underline{\quad} \times \underline{\quad} + \underline{\quad} \times \underline{\quad}$

$8 \times 6 = \underline{\quad} + \underline{\quad}$

$8 \times 6 = \underline{\quad}$

8. $9 \times 7 = \underline{\quad} \times \underline{\quad} + \underline{\quad} \times \underline{\quad}$

$9 \times 7 = \underline{\quad} + \underline{\quad}$

$9 \times 7 = \underline{\quad}$

9. $9 \times 8 = \underline{\quad} \times \underline{\quad} + \underline{\quad} \times \underline{\quad}$

$9 \times 8 = \underline{\quad} + \underline{\quad}$

$9 \times 8 = \underline{\quad}$

10. $8 \times 4 = \underline{\quad} \times \underline{\quad} + \underline{\quad} \times \underline{\quad}$

$8 \times 4 = \underline{\quad} + \underline{\quad}$

$8 \times 4 = \underline{\quad}$

11. **STEM Connection** Some nurses work 8 hours each day for 7 days. How many hours do some nurses work in 7 days? Explain your strategy.



12. **Extend Your Thinking** If you decompose a factor in a multiplication equation in different ways to multiply, will the product always be the same? Explain.

(1-8)	173
(9-12)	174

How can you use the 2s fact to find the unknown?

1. $8 \times 2 = 16$ $4 \times 8 = \underline{\hspace{2cm}}$
2. $2 \times 3 = 6$ $4 \times \underline{\hspace{2cm}} = 12$
3. $2 \times 9 = 18$ $9 \times 4 = \underline{\hspace{2cm}}$
4. $5 \times 2 = 10$ $5 \times \underline{\hspace{2cm}} = 20$
5. $6 \times 2 = 12$ $6 \times 4 = \underline{\hspace{2cm}}$



How can you decompose to solve the problem?
Show your thinking.

6. Mrs. Turner uses 9 eggs every week to make breakfast for her family. How many eggs does she use in 4 weeks?
7. Tyler made 4 friendship bracelets for each of his friends. How many bracelets did he make if he has 8 friends?
8. Luis babysits for 4 hours. He makes \$6 per hour. How much does he make in all?

9. Error Analysis Zara found the product of 4×7 .

She followed these steps.

- First, she found the product of 2×7 , which is 14.
- Then, she added $14 + 14 = 28$.

Zara says that $4 \times 7 = 28$. Do you agree or disagree? Explain.

10. What completes the equation?

$$\begin{array}{ll} 3 \times 4 = \underline{\quad\quad\quad} & 28 = \underline{\quad\quad\quad} \times 4 \\ 4 \times \underline{\quad\quad\quad} = 10 \times 4 & 5 \times \underline{\quad\quad\quad} = 20 \\ 4 = 4 \times \underline{\quad\quad\quad} & 6 \times 4 = \underline{\quad\quad\quad} \times 6 \\ 16 = 4 \times \underline{\quad\quad\quad} & \underline{\quad\quad\quad} = 4 \times 9 \end{array}$$

11. Which is equal to 9×4 ?

- | | |
|-------------------------------------|-------------------------------------|
| A. $9 \times 2 + 9 \times 2$ | B. $9 \times 4 + 9 \times 1$ |
| C. $5 \times 2 + 4 \times 2$ | D. $2 \times 4 + 2 \times 4$ |

12. Extend Your Thinking How can you use properties to find the products of 4×2 , 4×6 , and 4×0 ? Explain.

Learn	34
(1-7)	35
(8-12)	36

Learn

What are some ways to represent this number?



You can use a place-value chart.

thousands	hundreds	tens	ones
2	1	3	8

You can use base-ten blocks.

2 cubes 1 flat 3 rods 8 units
2,000 100 30 8

You can read and write the number in different forms.

standard form 2,138

expanded form $2,000 + 100 + 30 + 8$

word form two thousand, one hundred thirty-eight

4-digit numbers have thousands, hundreds, tens, and ones.

Math is... Generalizations

How is representing 4-digit numbers the same as representing 3-digit numbers?

What number is represented by the base-ten blocks?

1.

thousands	hundreds	tens	ones

2.

thousands	hundreds	tens	ones

How can you represent the number in the place-value chart and in expanded form?

3. 2,446

thousands	hundreds	tens	ones

4. 4,729

thousands	hundreds	tens	ones

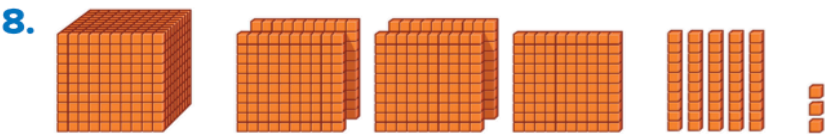
How can you represent the number shown in standard form and expanded form?

5. three thousand, one hundred twelve

6. six thousand, eighty-seven

7. seven thousand, two hundred twenty-four

How can you represent the number shown in standard form and expanded form?



How can you represent the number in standard form?

9. $8,000 + 500 + 2$

10. $9,000 + 50 + 2$

11. **STEM Connection** 1,455 customers visited Saffron’s pastry shop this month. Last month 1,355 customers came to the shop. Explain how she can use place value to determine the difference in the number of customers.



12. **Extend Your Thinking** Use the digits shown to write a number with the least possible value. Write the number in standard form, expanded form, and word form.

3 8 8 2

17	Estimate Sums and Differences	(1-8)	45
		(9-12)	46

What is a reasonable estimate of the sum or difference?
Write or draw to show your thinking.

1. $423 + 168 = ?$

2. $? = 695 - 205$

3. $? = 317 + 248$

4. $473 + 218 = ?$

5. $798 - 307 = ?$

6. $? = 835 - 466$

7. How can you use rounding to estimate the sum of $389 + 223$?

8. A complete set of baseball cards has 678 cards. Julio needs 273 more cards to complete his set. How can you use rounding to find about how many cards are in Julio’s collection?

9. The Comic Book Shack displays 318 comic books near the front door and keeps 502 comic books in the storage room. How can you use compatible numbers to find about how many comic books are in the store?

10. **STEM Connection** Saffron's bakery needs to decorate 355 cupcakes for an event. It has decorated 223 so far. How can she determine about how many more cupcakes they need to decorate?



11. Melinda estimates she traveled 830 miles last Monday and Tuesday. She traveled 412 miles on Tuesday. About how many miles could she have traveled on Monday?

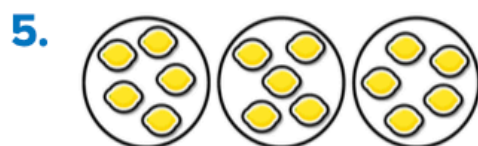
12. **Extend Your Thinking** Jason has 744 flyers to deliver. If he has delivered 62 flyers at each of his last 2 stops, about how many flyers does he have left to deliver?

18	a) Understand Equal Grouping	(1-8)	111
	b) Relate Multiplication and Division	(1-7)	115
		(8-12)	116

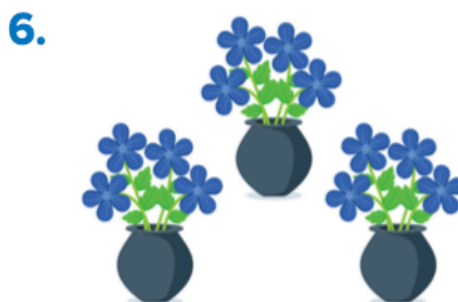
How can you draw a representation and answer the question?

1. 6 dogs
2 dogs at each water bowl
How many water bowls?
2. 8 balloons
2 balloons for each child
How many children?
3. 10 plates
5 plates on each table
How many tables?
4. 12 beads
4 beads for each bracelet
How many bracelets?

Which division equation describes the representation?



- A. $15 \div 3 = 5$
- B. $15 = 3 \div 3$
- C. $15 \div 5 = 5$
- D. $12 \div 5 = 5$



- A. $12 \div 4 = 4$
- B. $12 = 3 \div 4$
- C. $12 \div 5 = 4$
- D. $12 \div 3 = 4$

How can you write and solve an equation for the situation?

7. 8 students divided into 4 groups

8. 10 players divided into 2 teams

How can you draw an array to represent the situation?

1. 4 groups of 2 = 8
8 divided by 4 = 2

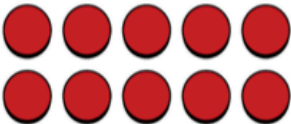
2. $2 \times 8 = 16$
 $16 \div 2 = 8$

How can you draw an equal group to represent the situation?

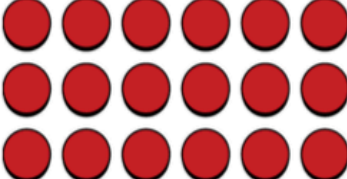
3. 4 groups of 3 = 12
12 divided by 4 = 3

4. $3 \times 5 = 15$
 $15 \div 3 = 5$

How can you write a division equation for the representation?

5. 

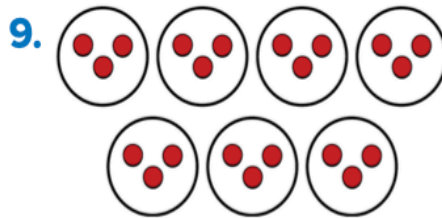
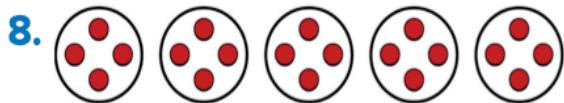
$$2 \times 5 = 10$$

6. 

$$3 \times 6 = 18$$

7. Jason says that because he knows $6 \times 2 = 12$, he also knows a related division equation. Explain why you agree or disagree.

Write a multiplication and a division equation to represent each model.



-
- 10. STEM Connection** Finn has 245 days to complete 3 parts of a construction project. He wants to spend the same number of days on each part. How can you write a multiplication and a division equation to represent the problem? Use a ? for the unknown.



- 11.** How can 9 pairs of shoes represent a multiplication and a division equation?

- 12. Extend Your Thinking** Mr. Mack gives 3 pencils to each of his students. He had 24 pencils. How can you use the multiplication equation $8 \times 3 = 24$ to find how many students he has in class?

19	a) Multiply Fluently by 0, 1, 2, 5, and 10	(1-12)	149
	b) Solve Problems Involving Equal Groups	(1-8)	153
		(9-12)	154

How can you use what you know about multiplication to answer the question?

1. Multiples of _____ and _____ are always even.
2. Multiples of _____ always have a 0 in the ones place.
3. The product of any number and _____ is itself.
4. The product of any number and _____ is always 0.

How can you complete the equation?

5. $5 \times 3 =$ _____
6. $2 \times 7 =$ _____
7. _____ $\times 8 = 0$
8. _____ $= 10 \times 4$
9. _____ $= 5 \times 6$
10. $9 \times$ _____ $= 9$

11. Felix has fewer than 10 nickels in his piggy bank. How many cents might he have? Explain how you know.

12. The Lee family buys pairs of mittens for their vacation. Can the Lee family buy 17 mittens in all? Explain.

How can you write a multiplication and division equation for the problem? Write a ? for the unknown.

1. Eight friends share 40 apple slices. If each friend receives the same amount of apple slices, how many does each person receive?
2. Bobbie, Wendy, and Winston spent a total of \$21 to go to the movies. If it cost each person the same amount, how much did each person spend?
3. Jermaine ran 56 minutes over seven days. If he ran the same amount of time each day, how many minutes did he run each day?
4. June earns \$25 for working five hours. If she earns the same amount each hour, how much does she get paid per hour?

How can you draw a representation for the set of equations?

5. $6 \times ? = 18$
 $18 \div 6 = ?$
6. $8 \times ? = 24$
 $24 \div 8 = ?$
7. $9 \times ? = 36$
 $36 \div 9 = ?$
8. $3 \times ? = 21$
 $21 \div 3 = ?$

9. Sam bought tickets to the county fair. How much did each ticket cost if each costs the same amount?
10. Carlos spends 35 minutes on homework. He spends the same amount of time on each of his 5 assignments. How long does he spend on each assignment?



11. **STEM Connection** It takes Grace 24 hours to write a computer program for 4 robots. If each program takes the same amount of time to write, how long does it take Grace to write one program? Explain.

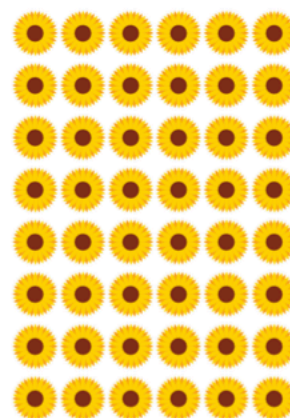


12. **Extend Your Thinking** Describe a situation that could be represented by the equations $4 \times ? = 12$ and $12 \div 4 = ?$. Then solve.

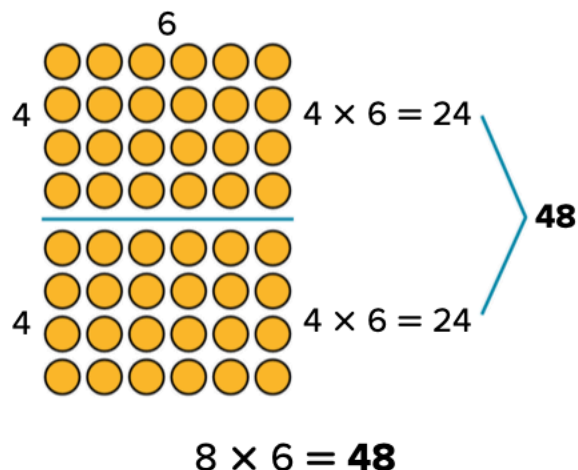
Learn

A gardener plants 8 rows of 6 sunflowers.

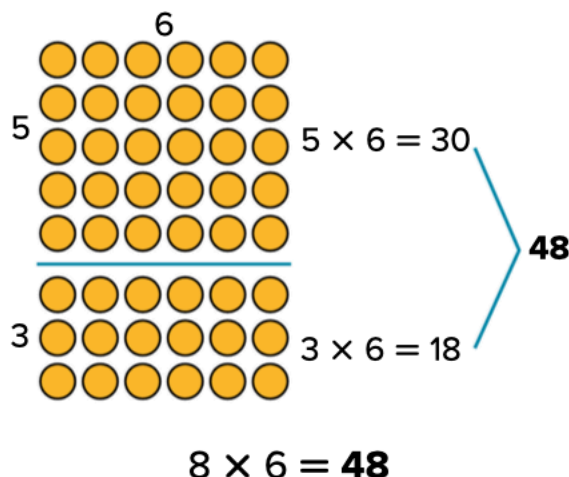
How can you find the total number of sunflowers he planted?



You can double the product of 4×6 to determine the product of 8×6 .



You can use a 5s fact and a 3s fact to determine the product of 8×6 .



You can decompose 8s facts in different ways.

Double the product of a 4s fact to find a product of 8.

You can use a 5s fact to recall an 8s fact.

Math is... Structure

How can you explain why the product of an 8s fact is always double the product of a 4s fact?

1. The array represents 3×4 . How can you use it to find the product of 3×8 ? Draw to show your work.



$3 \times 8 =$ _____

2. Jonathan placed cubes in 8 rows, with 6 cubes in each row. How can you decompose a factor to find the number of cubes he placed?

3. How can you find the products of 1×8 and 8×1 without decomposing?

////////////////////////////////////

How can you use 2s and 4s facts to complete 8s facts?

4. $2 \times 3 =$ _____ $4 \times 3 =$ _____ $8 \times 3 =$ _____

5. $2 \times 4 =$ _____ $4 \times 4 =$ _____ $8 \times 4 =$ _____

6. $2 \times 5 =$ _____ $4 \times 5 =$ _____ $8 \times 5 =$ _____

7. Complete each step to find the product of 8×9 using a 5s fact and a 3s fact.

$$5 \times 9 = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} \times 9 = 27$$

$$27 + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$8 \times 9 = \underline{\hspace{2cm}}$$

8. **Error Analysis** Tobias says that he can find the product of 4×8 by decomposing either of the factors into equal parts. Do you agree or disagree? Explain.

How can you complete the equation?

9. $\underline{\hspace{2cm}} = 3 \times 8$

10. $7 \times 8 = \underline{\hspace{2cm}}$

11. $6 \times 8 = \underline{\hspace{2cm}}$

12. $\underline{\hspace{2cm}} = 10 \times 8$

13. $8 \times 4 = \underline{\hspace{2cm}}$

14. $8 \times 8 = \underline{\hspace{2cm}}$