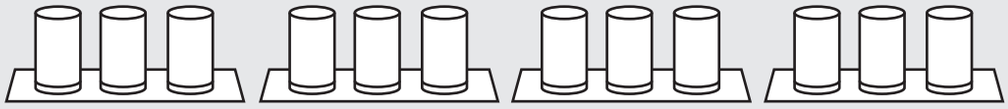
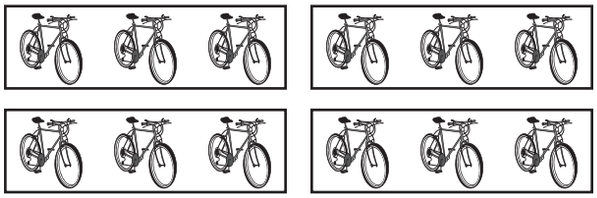
NS4-31 Sets and Sharing

Ella has 12 glasses of water. A tray holds 3 glasses. There are 4 trays.



Question:	**Answer:**
What has been shared or divided into **sets** or **groups**?	*Glasses*
How many sets are there?	*There are 4 sets of glasses.*
How many things are in each set?	*There are 3 glasses in each set.*

1. a)



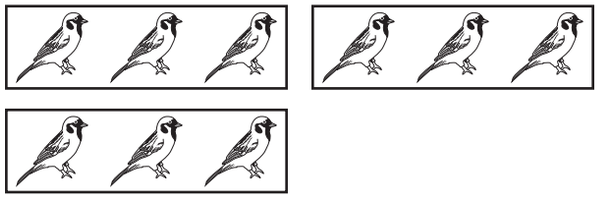
What has been shared into sets?

_____

How many sets? _____

How many in each set? _____

b)



What has been divided into sets?

_____

How many sets? _____

How many in each set? _____

2. Using circles for sets or groups and dots for things, draw a picture to show …

a) 4 sets
6 things in each set

b) 6 groups
3 things in each group

c) 6 sets
2 things in each set

d) 4 groups
5 things in each group

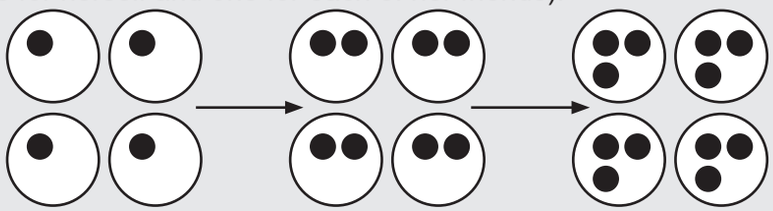
3. Complete the table.

		What has been divided into sets?	How many sets?	How many in each set?
a)	20 toys 4 toys for each child 5 children	*20 toys*	*5*	*4*
b)	7 friends 21 pencils 3 pencils for each friend			
c)	16 students 4 desks 4 students at each desk			
d)	8 plants 24 flowers 3 flowers on each plant			
e)	6 grapefruits in each box 42 grapefruits 7 boxes			
f)	3 school buses 30 children 10 children in each school bus			
g)	6 puppies in each litter 6 litters 36 puppies			
h)	28 markers 4 kids 7 markers for each kid			
i)	4 boxes 24 markers 6 markers in each box			

BONUS ▶ Draw pictures for Question 3 parts a), b), and c) using circles for sets and dots for the things being divided.

Kate wants to share 12 cookies with 3 friends.
She sets out 4 plates (one for herself and one for each of her friends).

She puts 1 cookie at a time on each plate:



When 12 cookies are **divided** into 4 sets, there are 3 cookies **in each set**.

4. Put an equal number of cookies on each plate the way Kate did.
Draw the plates, then place one cookie at a time.

a) 12 cookies; 3 plates

b) 16 cookies; 4 plates

5. Draw dots for the things being shared or divided equally. Draw circles for the sets.

a) 2 vans; 8 people
How many people in each van? _____

b) 3 students; 9 stickers
How many stickers for each student? _____

c) 20 flowers; 5 plants
How many flowers on each plant? _____

d) 12 grapefruits; 6 boxes
How many grapefruits in each box? _____

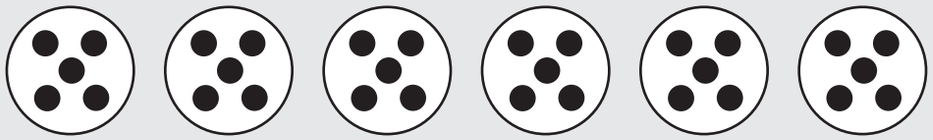
6. Five friends shared 20 cherries equally. How many cherries did each friend get?

7. Edmond shared 20 stickers among 3 friends and himself. How many stickers did each person get?

8. There are 16 apples in 8 trees. How many apples are in each tree?

Sam has 30 apples. He wants to give 5 apples to each of his friends.

To find out how many friends he can give apples to, he takes away **sets** (or **groups**) of 5 apples until he has no apples left.



He can give apples to 6 friends. When 30 apples are divided into sets of 5 apples, there are 6 sets.

9. Put the correct number of dots in each set.

a) 
4 dots in each set

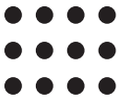
b) 
5 dots in each set

c) 
3 dots in each set

10. Draw circles to divide these arrays into …

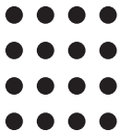
a) groups of 3

b) groups of 4



c) groups of 3

d) groups of 4



11. Draw dots for the things being shared or divided equally. Draw circles for the sets.

a) 15 apples; 5 apples in each box
How many boxes?

_____ boxes

b) 10 stickers; 2 stickers for each student
How many students?

_____ students

12. Shelly has 18 cookies. She gives 3 cookies to each of her siblings.
How many siblings does she have?

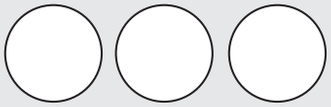
13. Matt has 14 stamps. He puts 2 stamps on each envelope.
How many envelopes does he have?

NS4-32 Two Ways to Share

Tristan has 15 cookies. There are two ways he can share or **divide** the cookies equally:

Method 1: Decide how many sets (or groups) **to make.**

Example: Tristan wants to make 3 sets of cookies. He draws 3 circles: He puts one cookie at a time into the circles until he has placed all 15 cookies.



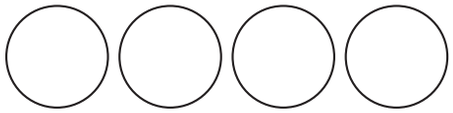
Method 2: Decide how many will be in each set.

Example: Tristan wants to put 5 cookies in each set. He counts out 5 cookies: He counts out sets of 5 until he has placed all 15 cookies.

Use Method 1 to do Questions 1, 2, and 3.

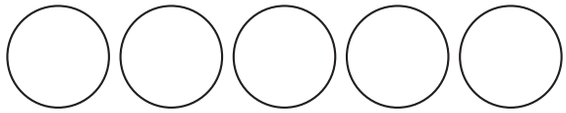
1. Share **20** dots equally. How many dots are in each set? Hint: Place one dot at a time.

a) 4 sets:



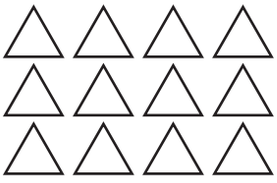
There are _____ dots in each set.

b) 5 sets:

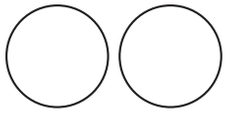


There are _____ dots in each set.

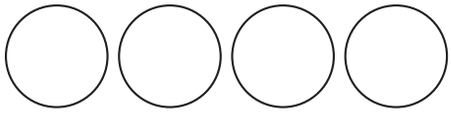
2. Divide the triangles equally among the sets. Hint: Count the triangles first.



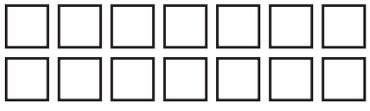
a)

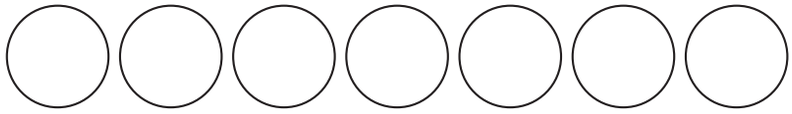


b)



3. Divide the squares equally among the sets.





Use Method 2 to do Questions 4 and 5.

4. Group the lines so that there are 3 lines in each set.

a) |||||||||

There are _____ sets.

b) ||||||||||||

There are _____ sets.

c) ||||||

There are _____ sets.

5. Group **12** dots so that …

a) there are 6 dots in each set.

b) there are 4 dots in each set.

6. For each part, fill in what you know. Write a question mark for what you don't know.

		What has been shared or divided into sets?	How many sets?	How many in each set?
a)	Vicky has 25 pencils. She puts 5 pencils in each box.	*25 pencils*	*?*	*5*
b)	30 children are in 10 boats.	*30 children*	*10*	*?*
c)	Ben has 36 stickers. He gives 9 stickers to each of his friends.			
d)	Don has 12 books. He puts 3 on each shelf.			
e)	15 girls sit at 3 tables.			
f)	30 students are in 2 school buses.			
g)	9 fruit bars are shared among 3 children.			
h)	15 chairs are in 3 rows.			
i)	Each basket holds 4 eggs. There are 12 eggs altogether.			

7. Draw a picture using dots and circles to solve each part of Question 6.

8. Draw a picture using dots and circles to show the answer.

a) 15 dots; 5 sets

____ dots in each set

b) 16 dots; 8 dots in each set

____ sets

c) 15 dots; 5 dots in each set

____ sets

d) 8 dots; 4 sets

____ dots in each set

e) 10 children are in 2 boats.

How many children are in each boat? ____

f) Tasha has 12 pencils.
She puts 3 pencils in each box.

How many boxes does she have? ____

g) 4 boys share 12 marbles.

How many marbles does each boy get? ____

h) Abella has 10 apples.
She gives 2 apples to each friend.

How many friends receive apples? ____

i) 6 children go sailing in 2 boats.

How many children are in each boat? ____

j) Alex has 10 stickers.
He puts 2 on each page.

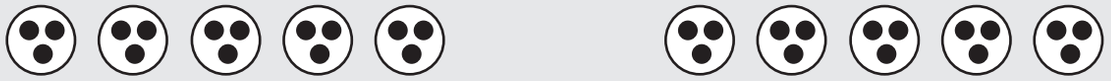
How many pages does he use? ____

NS4-33 Division, Addition, Subtraction, and Multiplication

Every division equation can be rewritten as an **addition equation** and a **multiplication equation**.

Example: "15 divided into sets of 3 equals 5 sets" gives

"adding 3 five times equals 15" and "5 groups of 3 equals 15"



3 + 3 + 3 + 3 + 3 = 15 **5 × 3 = 15**

1. Draw a picture and write addition and multiplication equations for each division equation.

a) $8 \div 2 = 4$

2 + 2 + 2 + 2 = 8

4 × 2 = 8

b) $12 \div 6 = 2$

c) $12 \div 3 = 4$

2. Draw a picture and write a division equation for each multiplication, addition, or subtraction equation.

a) $3 \times 4 = 12$

12 ÷ 4 = 3

b) $3 \times 6 = 18$

c) $5 + 5 + 5 + 5 = 20$

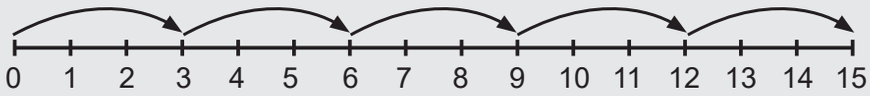
d) $2 \times 5 = 10$

e) $5 \times 3 = 15$

f) $18 - 9 - 9 = 0$

NS4-34 Dividing by Skip Counting

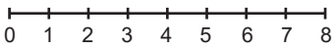
You can divide by skip counting on a number line. Example: Solve the problem **15 ÷ 3 = ?**.



It takes 5 skips of 3 to get 15: **3 + 3 + 3 + 3 + 3 = 15**, so **15 ÷ 3 = 5**.

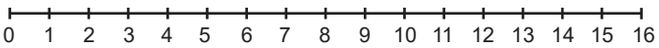
1. Draw a picture to show skip counting and complete the division equation.

a)



8 ÷ 2 = _____

b)



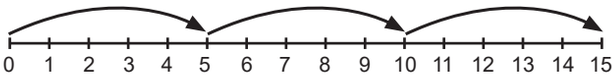
16 ÷ 8 = _____

2. What division equation does the picture represent?

a)

_____

b)



_____

You can also divide by skip counting on your fingers.

Example: To find **45 ÷ 9**, skip count by 9s until you reach 45.

The number of fingers you have up when you stop is the answer. So **45 ÷ 9 = 5**.

3. Find the answer by skip counting on your fingers.

a) 14 ÷ 2 = *7*

b) 18 ÷ 3 = _____

c) 20 ÷ 5 = _____

d) 36 ÷ 6 = _____

e) 48 ÷ 8 = _____

f) 63 ÷ 7 = _____

4. Use your answers from Question 3 to complete the equations. Was each answer correct?

a) Does 2 × [*7*] = *14* ? ✓

b) Does 3 × [ ] = *18* ?

c) Does 5 × [ ] = _____?

d) Does 6 × [ ] = _____?

e) Does _____ × [ ] = _____?

f) Does _____ × [ ] = _____?

5. 30 students sit in 6 rows. How many students are in each row?

NS4-35 Division and Multiplication

Remember: $10 \div 2 = 5$ tells us that $10 \div 5 = 2$ and $5 \times 2 = 10$ tells us that $2 \times 5 = 10$.
Also, every **division equation** can be rewritten as a **multiplication equation**.

Example: "10 divided into sets of 2 equals 5 sets" or **$10 \div 2 = 5$**

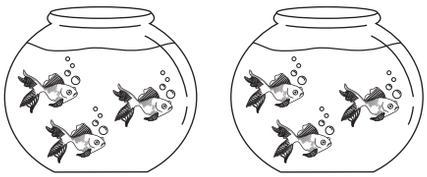
can be rewritten as "5 sets of 2 equals 10" or **$5 \times 2 = 10$**

1. Write two multiplication equations and two division equations for each picture.

a)

b)

c)

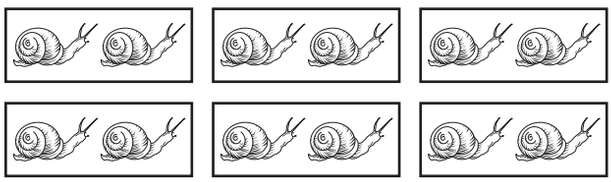


How many fish? _____

How many sets? _____

How many fish in each set? _____

d)



How many snails? _____

How many sets? _____

How many snails in each set? _____

2. Find the answer to the division problem by first finding the answer to the multiplication problem.

a) $4 \times \boxed{5} = 20$

$20 \div 4 = \boxed{5}$

b) $6 \times \boxed{} = 12$

$12 \div 6 = \boxed{}$

c) $5 \times \boxed{} = 20$

$20 \div 5 = \boxed{}$

d) $6 \times \boxed{} = 30$

$30 \div 6 = \boxed{}$

e) $9 \times \boxed{} = 45$

$45 \div 9 = \boxed{}$

f) $7 \times \boxed{} = 21$

$21 \div 7 = \boxed{}$

g) $3 \times \boxed{} = 24$

$24 \div 3 = \boxed{}$

h) $6 \times \boxed{} = 24$

$24 \div 6 = \boxed{}$

3. Fill in the blanks for each picture.

a) 

____ lines

____ lines in each set

____ sets

b) 

____ lines in total

____ sets

____ lines in each set

c) 

____ lines in each group

____ groups

____ lines

d) 

____ lines in each set

____ sets

____ lines altogether

e) 

____ lines

____ lines in each set

____ sets

f) 

____ lines in total

____ groups

____ lines in each group

g) 

____ lines

____ lines in each set

____ sets

h) 

____ lines in total

____ sets

____ lines in each set

i) 

____ lines in each group

____ groups

____ lines

4. Draw a picture of …

a) 16 lines altogether; 4 lines in each set; 4 sets.

b) 8 lines; 4 lines in each set; 2 sets.

c) 6 sets; 3 lines in each set; 18 lines in total.

d) 12 lines; 2 sets; 6 lines in each set.

5. Draw a picture *and* write two division equations and two multiplication equations.

a) 20 lines; 5 sets; 4 lines in each set

b) 15 lines; 5 lines in each set; 3 sets

6. Draw a picture to find the missing piece of information.

a) *5* lines in each set

____ sets

15 lines altogether

b) *18* lines

____ lines in each set

3 sets

c) ____ lines in total

3 groups

4 lines in each group

NS4-36 Multiply or Divide?

1. Multiply or divide to find the missing information (?) in the row.

	Total number of things	Number of sets	Number in each set	Multiplication or division equation
a)	?	6	3	$6 \times 3 = 18$
b)	20	4	?	$20 \div 4 = 5$
c)	15	?	5	
d)	10	2	?	
e)	?	4	6	
f)	21	7	?	

2. Write a multiplication or division equation to solve the problem.

a) 18 things in total
3 things in each set

18 ÷ 3 = 6

How many sets?

6

b) 5 sets
4 things in each set

How many things in total?

c) 15 things in total
5 sets

How many things in each set?

d) 8 groups
3 things in each group

How many things in total?

e) 6 things in each set
12 things in total

How many sets?

f) 5 groups
10 things in total

How many in each group?

g) 5 things in each set
4 sets

How many things in total?

h) 4 things in each set
6 sets

How many things in total?

i) 16 things in total
8 sets

How many things in each set?

3. Fill in the table. Use a question mark to show what you don't know. Then write a multiplication or division equation in the last column and answer the question.

		Total number of things	Number of sets	Number in each set	Multiplication or division equation
a)	20 people 4 vans	*20*	*4*	*?*	*20 ÷ 4 = 5* How many people in each van? *5*
b)	3 marbles in each jar 6 jars				How many marbles? _____
c)	15 flowers 5 pots				How many flowers in each pot? _____
d)	4 chairs at each table 2 tables				How many chairs? _____
e)	18 pillows 6 beds				How many pillows on each bed? _____
f)	18 houses 9 houses on each block				How many blocks? _____

This is the **fact family** for the multiplication equation **3 × 5 = 15**:

$3 \times 5 = 15$ $\quad 5 \times 3 = 15$ $\quad 15 \div 3 = 5$ $\quad 15 \div 5 = 3$

4. Complete the fact family for each equation.

a) $5 \times 2 = 10$ b) $4 \times 3 = 12$ c) $12 \div 2 = 6$ d) $8 \div 4 = 2$

NS4-37 Unit Rates

A **rate** is a comparison of two quantities in different units.

In a **unit rate**, one of the quantities is equal to one. For instance, "1 apple costs 30¢" is a unit rate.

1. Fill in the missing information.

a) 1 book costs $4.

2 books cost _____.

3 books cost _____.

4 books cost _____.

b) 1 ticket costs $5.

2 tickets cost _____.

3 tickets cost _____.

4 tickets cost _____.

c) 1 apple costs 20¢.

2 apples cost _____.

3 apples cost _____.

4 apples cost _____.

d) 20 km in 1 hour

_____ km in 3 hours

e) $12 allowance in 1 week

_____ allowance in 4 weeks

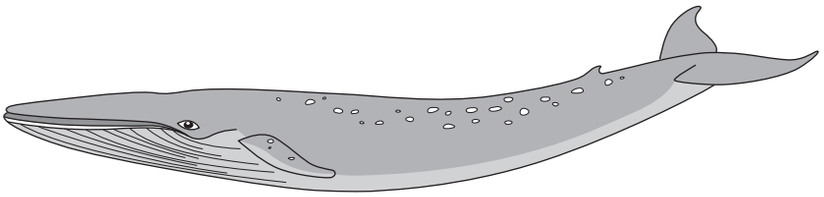
f) 1 teacher for 25 students

3 teachers for _____ students

g) 10 cups of water for 1 kg of rice

_____ cups of water for 5 kg of rice

2. In the pictures below, 1 centimetre represents 3 metres. Use a ruler to find out how long each whale is.



Killer Whale:

Length in cm: _____

Length in m: _____

Blue Whale:

Length in cm: _____

Length in m: _____

3. Kyle earns $8 an hour babysitting. How much will he earn in 4 hours? _____

4. Alice earns $10 an hour mowing lawns. How much will she earn in 8 hours? _____

5. Find the unit rate.

a) 2 books cost $10.

1 book costs _____.

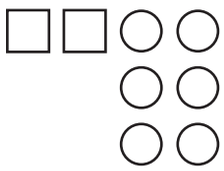
b) 4 mangoes cost $12.

1 mango costs _____.

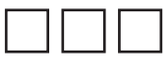
c) 6 cans of juice cost $12.

1 can of juice costs _____.

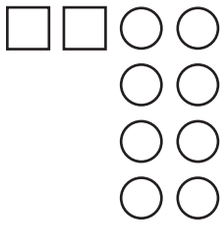
6. Draw 3 times as many circles as there are squares.

a) 

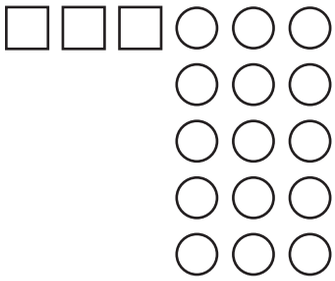
b) 

c) 

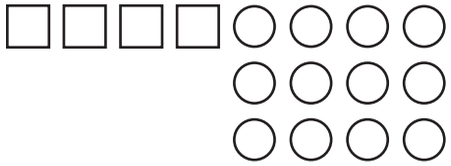
7. Write how many times as many circles as squares.

a) 

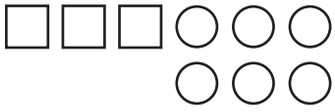
There are _____ times as many circles as squares.

b) 

There are _____ times as many circles as squares.

c) 

There are _____ times as many circles as squares.

d) 

There are _____ times as many circles as squares.

8. Use the multiplication equation to write how many times as many one number is than the other.

a) $35 = 5 \times 7$

35 is _____ times as many as 7.

b) $40 = 5 \times 8$

40 is _____ times as many as 8.

9. Draw a picture and write a multiplication equation.

a) There are 2 circles. There are 4 times as many triangles as circles.

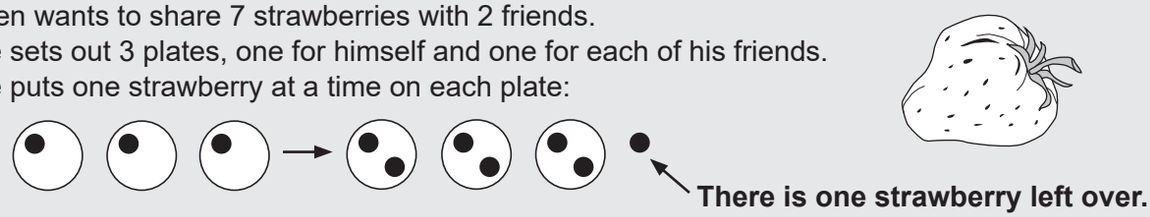
b) There are 2 boys. There are 3 times as many girls as boys.

c) There are 4 blue marbles. There are twice as many red marbles as blue marbles.

10. Kim has 6 books. Ronin has 3 times as many books as Kim.
How many books does Ronin have? Explain how you know.

NS4-38 Remainders

Glen wants to share 7 strawberries with 2 friends.
He sets out 3 plates, one for himself and one for each of his friends.
He puts one strawberry at a time on each plate:



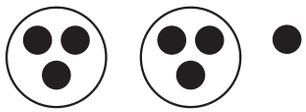
7 strawberries cannot be divided equally into 3 sets. Each friend gets 2 strawberries, but one is left over.

$7 \div 3 = 2$ Remainder 1

1. Can 2 people share 5 strawberries equally? Show your work using dots and circles.

2. Share the dots as equally as possible among the circles. Then fill in the blanks.
Note: In one question, the dots can be shared equally (so there's no remainder).

a) 7 dots in 2 circles



_____ dots in each circle; _____ dot remaining

b) 10 dots in 3 circles

_____ dots in each circle; _____ dot remaining

c) 10 dots in 5 circles

_____ dots in each circle; _____ dots remaining

d) 9 dots in 4 circles

_____ dots in each circle; _____ dot remaining

e) 12 dots in 5 circles

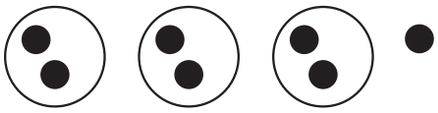
_____ dots in each circle; _____ dot remaining

f) 13 dots in 4 circles

_____ dots in each circle; _____ dot remaining

3. Share the dots as equally as possible. Draw a picture and write a division equation.

a) 7 dots in 3 circles



7 ÷ 3 = 2 Remainder 1

b) 11 dots in 3 circles

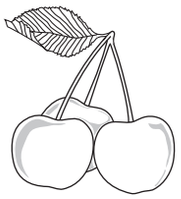
c) 14 dots in 3 circles

d) 10 dots in 6 circles

e) 10 dots in 4 circles

f) 13 dots in 5 circles

4. Three friends want to share 7 cherries. How many cherries will each friend receive? How many will be left over? Show your work and write a division equation.

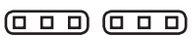
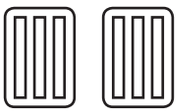
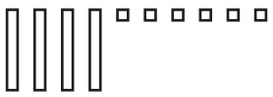


5. Find two different ways to share 13 granola bars into equal groups so that one is left over.

6. Fred, Avril, and Mandy have fewer than 10 oranges and more than 3 oranges. They share the oranges equally. How many oranges do they have? Is there more than one answer?

NS4-39 Dividing Using Tens Blocks

1. Divide the blocks among 2 equal groups. Then write the division equation.

a)		*6* ÷ 2 = *3*
b)		*60* ÷ 2 = _____
c)		_____ ÷ 2 = _____
d)		_____ ÷ 2 = _____

2. a) Divide 8 tens among 4 equal groups. Then finish the division equation.

8 tens ÷ 4 = *2* tens So 80 ÷ 4 = *20*

b) Divide 9 tens among 3 equal groups. Then finish the division equation.

9 tens ÷ 3 = _____ tens So 90 ÷ 3 = _____

c) Divide 6 tens among 2 equal groups. Then finish the division equation.

6 tens ÷ 2 = _____ tens So _____ ÷ 2 = _____

3. Divide.

a) 9 ÷ 3 = _____ b) 20 ÷ 4 = _____ c) 90 ÷ 3 = _____ d) 40 ÷ 4 = _____

e) 99 ÷ 3 = _____ f) 48 ÷ 4 = _____ g) 69 ÷ 3 = _____ h) 84 ÷ 4 = _____

4. Draw blocks to divide.

a) 30 ÷ 2 = _____ b) 56 ÷ 2 = _____

c) 42 ÷ 3 = _____ d) 15 ÷ 3 = _____

NS4-40 Dividing Multiples of 10

1. Divide by 10.

a) $30 \div 10 =$ _____ b) $50 \div 10 =$ _____ c) $80 \div 10 =$ _____

d) $90 \div 10 =$ _____ e) $40 \div 10 =$ _____ f) $100 \div 10 =$ _____

g) $70 \div 10 =$ _____ h) $10 \div 10 =$ _____

Grace wants to calculate $60 \div 5$. She notices that there are 2 groups of 5 in every tens block. She draws 6 tens blocks then skip counts by 2 to divide.

2 4 6 8 10 12

2. Draw tens blocks. Then skip count by 2 to divide by 5.

a) $30 \div 5 =$ _____ b) $50 \div 5 =$ _____ c) $70 \div 5 =$ _____

d) $90 \div 5 =$ _____ e) $20 \div 5 =$ _____ f) $40 \div 5 =$ _____

g) $60 \div 5 =$ _____ h) $10 \div 5 =$ _____

Lewis notices that there are 5 groups of 2 in every ten. He calculates $40 \div 2$ by multiplying 4×5.

3. Divide by 2.

a) $90 \div 2 =$ _____ b) $60 \div 2 =$ _____ c) $80 \div 2 =$ _____

d) $20 \div 2 =$ _____ e) $30 \div 2 =$ _____ f) $10 \div 2 =$ _____

g) $70 \div 2 =$ _____ h) $50 \div 2 =$ _____

4. Divide by 4.

a) $40 \div 4 =$ _____ b) $80 \div 4 =$ _____ c) $20 \div 4 =$ _____ d) $60 \div 4 =$ _____

5. Divide.

a) $30 \div 5 =$ _____ b) $60 \div 10 =$ _____ c) $70 \div 2 =$ _____

d) $80 \div 4 =$ _____ e) $40 \div 10 =$ _____ f) $40 \div 2 =$ _____

g) $40 \div 5 =$ _____ h) $30 \div 3 =$ _____ i) $30 \div 2 =$ _____

j) $30 \div 10 =$ _____ k) $70 \div 5 =$ _____ l) $90 \div 3 =$ _____

m) $40 \div 4 =$ _____ n) $60 \div 4 =$ _____ o) $60 \div 3 =$ _____

p) $10 \div 5 =$ _____ q) $20 \div 5 =$ _____ r) $100 \div 5 =$ _____

s) $70 \div 10 =$ _____ t) $90 \div 5 =$ _____ u) $80 \div 5 =$ _____

v) $100 \div 2 =$ _____ w) $50 \div 2 =$ _____ x) $20 \div 10 =$ _____

6. Divide.

a) $30 \div 3 =$ _____ b) $90 \div 9 =$ _____ c) $80 \div 8 =$ _____

d) $20 \div 2 =$ _____ e) $60 \div 6 =$ _____ f) $100 \div 10 =$ _____

g) $70 \div 7 =$ _____ h) $10 \div 1 =$ _____

7. Divide by 5.

a) $30 \div 5 =$ _____ b) $35 \div 5 =$ _____ c) $70 \div 5 =$ _____

d) $75 \div 5 =$ _____ e) $25 \div 5 =$ _____ f) $45 \div 5 =$ _____

g) $65 \div 5 =$ _____ h) $15 \div 5 =$ _____ i) $85 \div 5 =$ _____

j) $55 \div 5 =$ _____ k) $95 \div 5 =$ _____ l) $5 \div 5 =$ _____

BONUS ▶ Divide by 2.

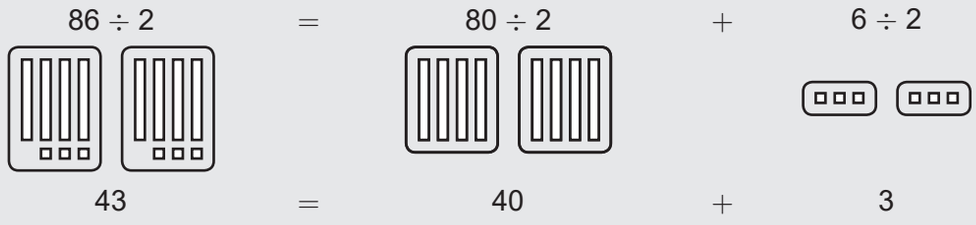
a) $44 \div 2 =$ _____ b) $64 \div 2 =$ _____ c) $86 \div 2 =$ _____

d) $28 \div 2 =$ _____ e) $84 \div 2 =$ _____ f) $22 \div 2 =$ _____

g) $66 \div 2 =$ _____ h) $46 \div 2 =$ _____

NS4-41 Division Strategies

To find 86 ÷ 2, divide the tens and ones separately.



1. Divide one place value at a time.

a) $64 \div 2 = (60 \div 2) + (4 \div 2)$

$= \underline{\ 30\ } + \underline{\ 2\ }$

$= \underline{\ 32\ }$

b) $69 \div 3 = (60 \div 3) + (9 \div 3)$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

c) $86 \div 2 = (80 \div 2) + (6 \div 2)$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

d) $96 \div 3 = (\_\_\_\_\_ \div 3) + (\_\_\_\_\_ \div 3)$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

e) $39 \div 3 = (\_\_\_\_ \div \_\_\_\_) + (\_\_\_\_ \div \_\_\_\_)$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

f) $84 \div 4 = (\_\_\_\_ \div \_\_\_\_) + (\_\_\_\_ \div \_\_\_\_)$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

g) $58 \div 2 = (\_\_\_\_ \div \_\_\_\_) + (\_\_\_\_ \div \_\_\_\_)$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

h) $65 \div 5 = (\_\_\_\_ \div \_\_\_\_) + (\_\_\_\_ \div \_\_\_\_)$

$= \_\_\_\_\_ + \_\_\_\_\_$

$= \_\_\_\_\_$

BONUS ▶ $824 \div 2 = (800 \div 2) + (20 \div 2) + (4 \div 2)$

2. Check your answer to Question 1, parts a) and b) by multiplication.

a)

	3	2
×		2
	6	4

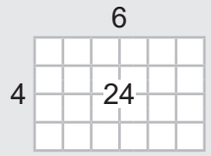
← Is this 64? ✓

b)

×		3

← Is this 69? _____

A rectangle with 4 squares down and 6 squares across has 24 squares in total.



$4 \times 6 = 24$ so $24 \div 4 = 6$

3. How many squares across is the rectangle?

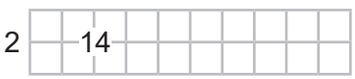
a)  $12 \div 3 =$ _____

b)  $15 \div 3 =$ _____

4. Draw the rectangle to make the total number of squares. How many squares across do you need?

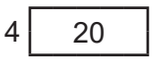
a) *4*

b) _____



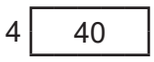
5. Decide how many squares across you need to make the rectangle. Then write the division equation.

a) *5*



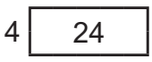
20 ÷ 4 = 5

b) _____



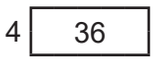
_____

c) _____



_____

d) _____

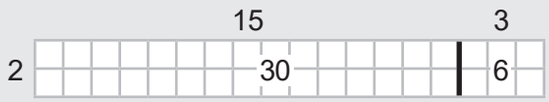


_____

Tina finds $36 \div 2$ by splitting 36 into tens and ones.

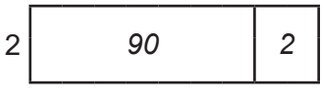
$36 = 30 + 6$ so

$36 \div 2 = 15 + 3 = 18$



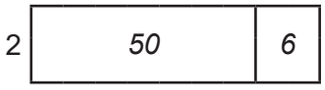
6. Use Tina's method to divide.

a) $92 \div 2$ *45* + *1*



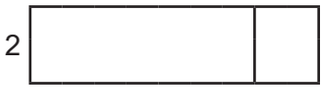
$92 \div 2 =$ *46*

b) $56 \div 2$ _____ + _____



$56 \div 2 =$ _____

c) $62 \div 2$ _____ + _____



$62 \div 2 =$ _____

d) $74 \div 2$ _____ + _____

$74 \div 2 =$ _____

Raj uses Tina's method to divide $78 \div 2$, but…

… he chooses the tens and ones so that the **number of tens** is a multiple of the **number that he is dividing by**.

He uses the largest number of tens he can.

$78 = 7$ tens $+ 8$ ones

$= \mathbf{6}$ tens $+ 18$ ones

6 is a multiple of **2**

$30 + 9$

2	60	18

So $78 \div 2 = 39$

7. Use Raj's method to divide.

a) $94 \div 2$

$94 = 9$ tens $+ 4$ ones

$= 8$ tens $+$ _____ ones

8 is a multiple of 2

_____ + _____

2	*80*	

$94 \div 2 =$ _____

b) $84 \div 3$

$84 = 8$ tens $+ 4$ ones

$= 6$ tens $+$ _____ ones

6 is a multiple of 3

_____ + _____

3	*60*	

$84 \div 3 =$ _____

c) $58 \div 2$

_____ + _____

2		

$58 \div 2 =$ _____

d) $51 \div 3$

_____ + _____

3		

$51 \div 3 =$ _____

e) $72 \div 3$

_____ + _____

3		

$72 \div 3 =$ _____

f) $96 \div 4$

_____ + _____

4		

$96 \div 4 =$ _____

8. A rectangular patio floor is covered with 84 tiles in 6 rows.
How many tiles are in each row?

So there are _____ tiles in each row.

_____ + _____

6		

NS4-42 Estimating Quotients

1. Write **more** or **less**.

a) $72 \div 8$ is _____ than $80 \div 8$

b) $63 \div 3$ is _____ than $60 \div 3$

c) $84 \div 7$ is _____ than $70 \div 7$

d) $95 \div 5$ is _____ than $100 \div 5$

2. Replace the dividend with the next multiple of 10 to make the division easier.

a) $76 \div 2 < \underline{80} \div 2$

$76 \div 2 < \underline{40}$

b) $56 \div 4 <$ _____ $\div 4$

$56 \div 4 <$ _____

c) $87 \div 3 <$ _____ $\div 3$

$87 \div 3 <$ _____

d) $98 \div 2 <$ _____ $\div 2$

$98 \div 2 <$ _____

e) $84 \div 6 <$ _____ $\div 6$

$84 \div 6 <$ _____

f) $52 \div 3 <$ _____ $\div 3$

$52 \div 3 <$ _____

3. Replace the dividend with the next smaller multiple of 10 to make the division easier.

a) $66 \div 2 > \underline{60} \div 2$

$66 \div 2 > \underline{30}$

b) $66 \div 3 >$ _____ $\div 3$

$66 \div 3 >$ _____

c) $36 \div 6 >$ _____ $\div 6$

$36 \div 6 >$ _____

d) $88 \div 4 >$ _____ $\div 4$

$88 \div 4 >$ _____

e) $77 \div 7 >$ _____ $\div 7$

$77 \div 7 >$ _____

f) $99 \div 9 >$ _____ $\div 9$

$99 \div 9 >$ _____

4. Write two divisions using greater multiples of 10. Choose the division that is easiest.

a) $45 \div 3 < \underline{50} \div 3 < \underline{60} \div 3$

$45 \div 3 < \underline{60} \div 3$

$45 \div 3 < \underline{20}$

b) $56 \div 4 <$ _____ $\div 4 <$ _____ $\div 4$

$56 \div 4 <$ _____ $\div 4$

$56 \div 4 <$ _____

c) $56 \div 7 <$ _____ $\div 7 <$ _____ $\div 7$

$56 \div 7 <$ _____ $\div 7$

$56 \div 7 <$ _____

d) $54 \div 6 <$ _____ $\div 6 <$ _____ $\div 6$

$54 \div 6 <$ _____ $\div 6$

$54 \div 6 <$ _____

5. Write two divisions using smaller multiples of 10. Choose the division that is easiest.

a) $45 \div 3 >$ *40* $\div 3 >$ *30* $\div 3$

$45 \div 3 >$ *30* $\div 3$

$45 \div 3 >$ *10*

b) $56 \div 4 >$ _____ $\div 4 >$ _____ $\div 4$

$56 \div 4 >$ _____ $\div 4$

$56 \div 4 >$ _____

c) $47 \div 3 >$ _____ $\div 3 >$ _____ $\div 3$

$47 \div 3 >$ _____ $\div 3$

$47 \div 3 >$ _____

d) $72 \div 6 >$ _____ $\div 6 >$ _____ $\div 6$

$72 \div 6 >$ _____ $\div 6$

$72 \div 6 >$ _____

6. Use your answers to Questions 4 and 5 to find what the division is between.

a) $45 \div 3$ is between *10* and *20*.

b) $56 \div 4$ is between _____ and _____.

7. Choose a multiple of 10 that makes the division easier. Is the quotient greater or smaller? Write the sign in the circle. Then calculate the answer.

a) $45 \div 5$ (<) *50* $\div 5 =$ _____

b) $84 \div 7$ ( ) _____ $\div 7 =$ _____

c) $72 \div 4$ ( ) _____ $\div 4 =$ _____

d) $72 \div 6$ ( ) _____ $\div 6 =$ _____

8. Estimate then calculate the answer.

a) 6 cars lined up make a line 24 m long. How long is each car?

b) 7 batteries weigh 84 grams. How much does each battery weigh?

9. Clara says that $72 \div 3$ is more than 20. Ray says it is less than 30. Who is correct? Explain.

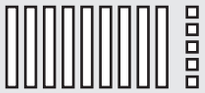
NS4-43 The Standard Algorithm for Division

Ivan is preparing snacks for 4 classes. He needs to divide 95 apples into 4 groups.
He uses long division and a model to solve the problem.

Step 1: Write the numbers like this:

the number of groups ⟶ $4\overline{)95}$ ⟵ the number of objects to divide into groups

95 = 9 tens + 5 ones



1. Fill in the blanks for the division statement.

a) $2\overline{)53}$

_____ groups

_____ tens

_____ ones

b) $5\overline{)71}$

_____ groups

_____ tens

_____ ones

c) $4\overline{)97}$

_____ groups

_____ tens

_____ ones

d) $5\overline{)88}$

_____ groups

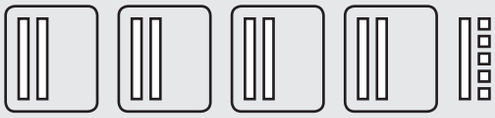
_____ tens

_____ ones

Step 2: How many tens can be put in each group?

2 tens in each group ⟶ **2**

4 groups ⟶ $4\overline{)\,9\;5}$



2. For each division problem, write how many groups have been made and how many tens are in each group.

a) $4\overline{)\square\;5\;5}$

_____ groups

_____ ten in each group

b) $5\overline{)\square\;9\;7}$

_____ groups

_____ ten in each group

c) $3\overline{)\square\;7\;6}$

_____ groups

_____ tens in each group

d) $3\overline{)\square\;8\;9}$

_____ groups

_____ tens in each group

3. How many tens can be put in each group?

a) $4\overline{)\,8\;7}$ (2)

b) $3\overline{)\square\;9\;4}$

c) $6\overline{)\square\;7\;4}$

d) $2\overline{)\square\;9\;8}$

e) $2\overline{)\square\;8\;5}$

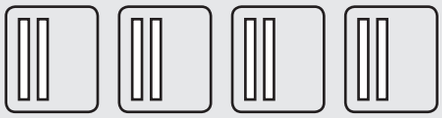
f) $3\overline{)\square\;6\;7}$

g) $8\overline{)\square\;9\;1}$

h) $3\overline{)\square\;8\;2}$

Step 3: How many tens have been placed into groups altogether?

$2 \times 4 = 8$



$\times$ 2 ← 2 tens in each group

4 groups → 4) 9 5

8 ← So $2 \times 4 = 8$ tens have been placed

4. Multiply to decide how many tens have been placed.

a) $\times$ 2 — 3) 8 7 — *6*

b) 2 — 4) 9 9

c) 3 — 2) 7 9

d) 4 — 2) 8 9

5. Multiply to decide how many tens have been placed. Then answer the questions.

a) 2 — 3) 8 7

How many groups? _____

How many tens? _____

How many tens in each group? _____

How many tens placed altogether? _____

b) 2 — 4) 9 6

How many groups? _____

How many tens? _____

How many tens in each group? _____

How many tens placed altogether? _____

6. Skip count to find out how many tens can be placed in each group. Then multiply to find out how many tens have been placed.

a) 8) 9 4

b) 5) 9 4

c) 2) 8 8

d) 7) 9 5

e) 4) 8 5

f) 4) 9 2

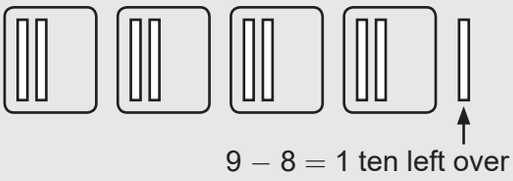
g) 5) 6 3

h) 2) 9 8

Step 4: How many tens are left over?

There are 9 tens.
Ivan has placed 8. →
9 − 8 = 1 ten is left over →

	2	
4	9	5
−	8	
	1	



7. Carry out the first four steps of long division.

a) 7) 9 7

b) 3) 7 4

c) 2) 6 3

d) 4) 7 3

e) 7) 8 5

f) 7) 8 4

g) 3) 8 7

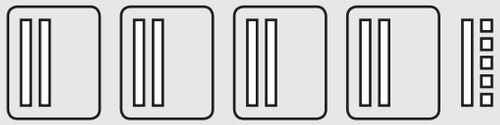
h) 5) 7 1

Step 5: There are 1 ten and 5 ones left over.
So there are 15 ones left over.

Write 5 beside the 1 to show this.

	2	
4	9	5
−	8	↓
	1	**5**

← There are 15 ones still to place



8. Carry out the first five steps of long division.

a) 5) 7 5 (−)

b) 7) 8 7 (−)

c) 4) 9 3 (−)

d) 2) 7 3 (−)

e) 8) 9 7 (−)

f) 4) 7 6 (−)

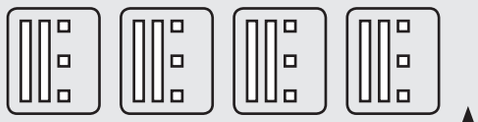
g) 3) 9 4 (−)

h) 9) 9 4 (−)

Step 6: How many of the 15 ones can be placed in each group?

Divide to find out.

	2	**3** ← $15 \div 4 = 3$ R ?
4)	9	5
−	8	↓
	1	**5**



How many ones are left over? ↑

9. Carry out the first six steps of long division.

a)

5)	9	4
−		

b)

4)	8	7
−		

c)

2)	7	5
−		

d)

3)	5	1
−		

e)

7)	8	5
−		

f)

2)	9	5
−		

g)

8)	9	6
−		

h)

3)	9	2
−		

Step 7: How many ones are left over?

×	2	3 ← 3 ones in each group and 4 groups
4)	9	5
−	8	
	1	5
−	**1**	**2** ← $4 \times 3 = 12$ ones were placed
		3 ← $15 - 12 = 3$ ones are left over

left over ↑

$95 \div 4 = 23$ with 3 left over

10. Carry out all seven steps of long division.

a)

4)	6	5
−		
−		

b)

6)	7	8
−		
−		

c)

3)	8	4
−		
−		

d)

3)	7	5
−		
−		

11. a) How many weeks are there in 84 days?

b) A boat can hold 4 children. How many boats will 72 children need?

NS4-44 Division Word Problems

1. Tom needs new tires for his car. Each tire costs $263. How much do all 4 tires cost?

2. Jennifer plants 84 lilies in 4 flower beds. How many lilies are in each flower bed?

3. A square garden needs 68 m of fencing altogether. How long is each side of the garden?

4. John paid $72 for 6 T-shirts. How much did each T-shirt cost?

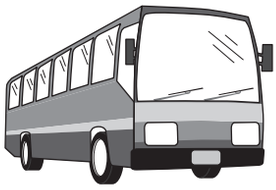
5. How many weeks are there in the month of February?

6. Armand buys 3 pens for $11. Then he buys 5 more pens for $13. How much did he end up paying per pen?

7. A queen ant can lay one egg every ten seconds. How many eggs can she lay in …

a) 1 minute? b) 2 minutes? c) an hour?

8. 92 students attend a play on 4 buses. There are an equal number of students on each bus.



a) How many students are on each bus?

b) A ticket for the play costs $6. How much will it cost for one busload of students to attend the play?

9. Find two different ways to share 14 apples in equal groups so there are 2 apples left over.

10. Find three numbers that give the same remainder when divided by 3.

11. A robin lays *at least* 3 eggs and *no more than* 6 eggs.

a) What is the least number of eggs 3 robins' nests would hold (if there were eggs laid in each nest)?

b) What is the greatest number of eggs 3 robins' nests would hold?

c) Three robins' nests contain 13 eggs. Draw a picture to show 2 ways the eggs could be shared among the nests.

12. Aputik used 3 times as many blue beads as red beads for a bracelet. She used 12 more blue beads than yellow beads. She used 3 yellow beads.

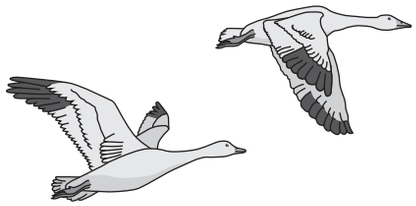
a) How many beads of each color did Aputik use?

b) How many beads did she use in total?

13. Snow geese can fly 200 km in 3 hours. They can fly for a very long time.

a) How far can they travel in 6 hours? 9 hours?

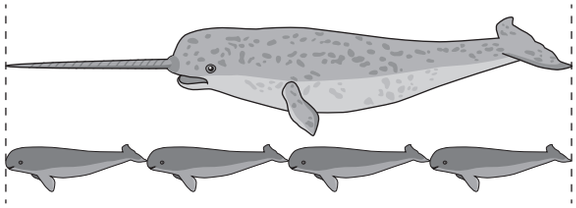
b) Some snow geese flew for 18 hours, rested, and then flew for another 21 hours. How long did the geese travel? How far did the geese travel?



14. A narwhal is an arctic whale. The adult male has one very long tooth. An adult narwhal is about 5 m long from nose to tail, and its tooth is 3 m long. Use the diagram to tell how long a baby narwhal is.

adult male narwhal

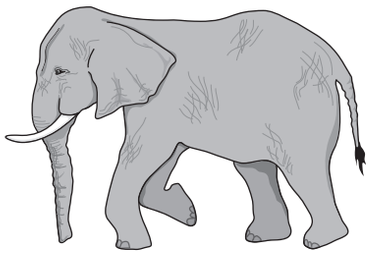
baby narwhal



15. An eraser is 5 cm long. A pencil is 15 cm long.
Write your answer to the question as a full sentence.

a) How many times longer is the pencil than the eraser?

b) How many centimetres longer is the pencil than the eraser?



16. An elephant weighs 2000 kg and is 2 m tall.
Is this elephant 1000 times heavier than it is tall? Explain.

17. There are 5 people at a pizza party. They ordered 2 pizzas. Each pizza has 8 slices. Each person gets the same number of slices. How many slices can each person have?

18. There are 52 avocados in a crate. Thirteen are spoiled. Nora packs the rest into bags of 5 avocados. How many bags can she make?

19. There are 24 students in one class and 23 students in another class going on a field trip. Each car can hold 4 students. How many cars are needed to transport all the students?