DETERMINING UNKNOWN NUMBERS

in multiplication and division

3rd Grade



Printable & Google Slides

DETERMINING UNKNOWN NUMBERS

3rd grade

Table of Contents

1. Anchor Charts (3 pages)
2. Strategy: Equal Groups (2 pages)
3. Strategy: Arrays (2 pages)
4. Strategy: Number Line (2 pages)
5. Strategy: Repeated Addition/Subtraction (2 pages)
6. Strategy: Fact Families (2 pages)
7. Strategy: Strip Diagrams (2 pages)
8. Strategy: Number Bonds (1 page)
9. Practice Problems (6 pages)
10. Unknown Numbers in Story Problems (2 pages)
11. Review Games and Activities (6 pages)
12. Test (4 pages)

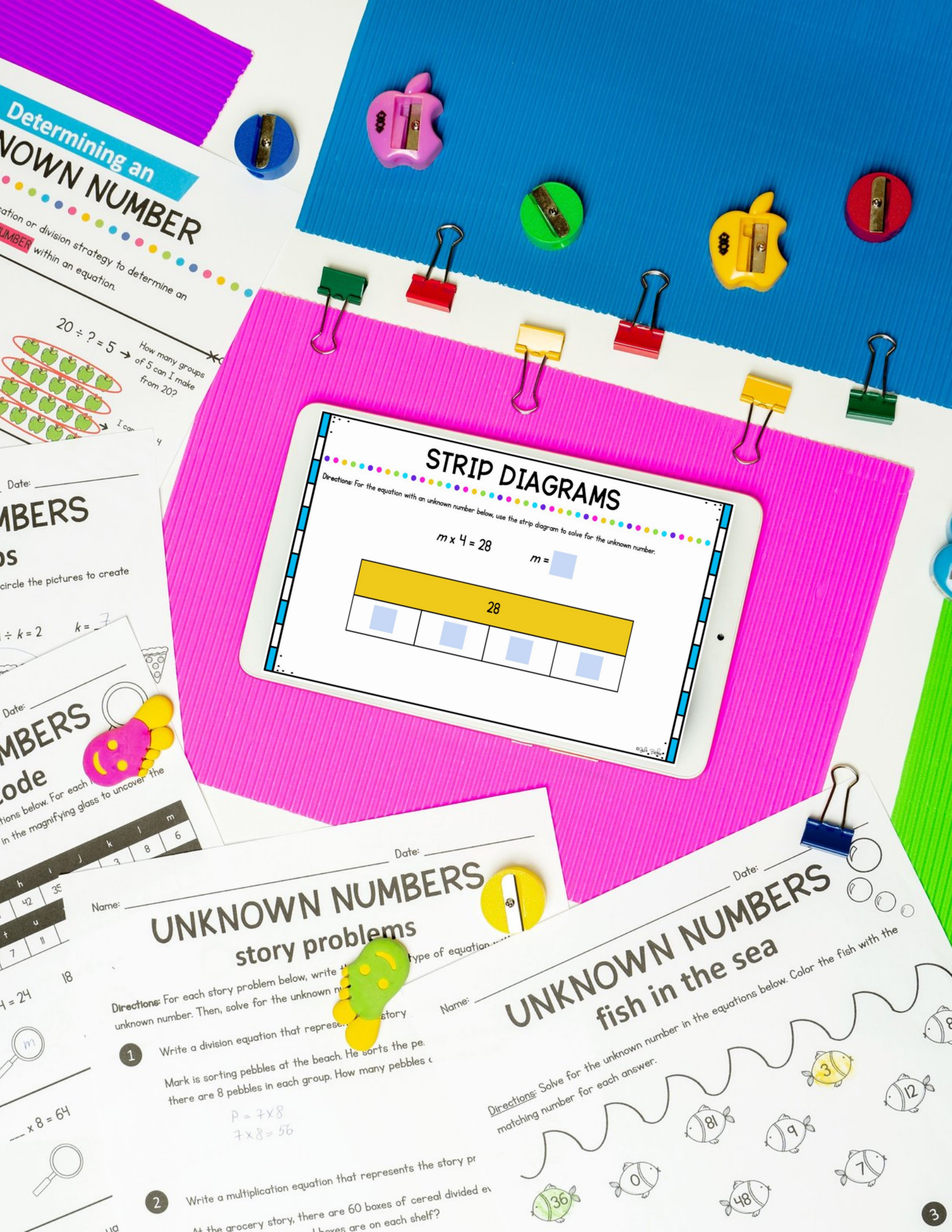


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Determining an
UNKNOWN NUMBER
You can use any multiplication or division strategy to determine an UNKNOWN NUMBER within an equation.
4 x ? = 12 → How many groups of 4 can I make from 12?
I can make 3 groups of 4.
The unknown number is 3.
20 ÷ ? = 5 → How many groups of 5 can I make from 20?
I can make 4 groups of 5.
The unknown number is 4.
= 36 → How many rows of 6 can I make from 36?
I can make 6 rows of 6.
The unknown number is 6.
40 ÷ ? = 8 → How many rows of 8 can I make from 4
= 15 → How many hops of 5 can I make to get to 15?
3 hops of 5.
number is 3.
24 ÷ ? = 8 →
0 8 16 24 32
I can make 3 backwards hops of
The unknown number is 3.
Name:
Date:
UNKNOWN NUMBERS
fish in the sea
Directions: Solve for the unknown number in the equations below. Color the fish with the matching number for each answer.
3
9
8
48
0
36
10
11
1 _ x 4 = 12
18 ÷
EQUAL GROUPS
Directions: For the equation below, drag the pictures to create equal groups. Write the unknown number.
14 ÷ k = 2
k = 7
UMBERS
ms
ied type of equation with an
y problem.
pebbles into 7 groups, and
es are there in all?
1
ory problem.
vided evenly between 6
problem.
Name:
Date:
UNKNOWN NUMBERS
equal groups
Directions: For the equations with unknown numbers below, circle the pictures to create equal groups. Write the unknown number.
1 3 x m = 24 m = 8
2 14 ÷ k = 2 k = 7
3 28 ÷ r = 7 r = ____
4 b x 6 = 30 b = ____
6
Name:
UN
Directions: Solve for t
find the correspondin
secret words.
a b c
6 27 2
n o p
9 10 72
SECRET WORD #1
14 ÷ 2
SECRET WORD #2
9 x 3 =


Determining an
UNKNOWN NUMBER
You can use any multiplication or division strategy to determine an UNKNOWN NUMBER within an equation.
4 x ? = 12 → How many groups of 4 can
Name:
Date:
UNKNOWN NUMBERS
equal groups
Directions: For the equations with unknown numbers below, circle the pictures
equal groups. Write the unknown number.
1 3 x m = 24
m = 8
2 14 ÷ k = 2
k = 7
3 28 ÷ r = 7
r = ___
5 3 x e = 9
FACT FAMILIES
Directions: Use fact families to determine the unknown numbers in the equations below.
7
3
21
3 x 7 =
7 x = 21
21 ÷ = 7
21 ÷ 7 =
3
10
30
3 x 10 =
10 x = 30
÷ 10 = 3
30 ÷ 3 =
Name:
Date:
UNKNOWN NUMBERS
break the code
Directions: Solve for the unknown numbers in the equations below. For each missing number,
find the corresponding letter in the key and write it in the magnifying glass to uncover the
secret words.
a b c d e f g h i j k
6 27 2 0 5 15 4 42 35 12
n o p q r s t
9 10 72 66 9 36 7
SECRET WORD #1
14 ÷ 2 = 7
6 x 4 = 24
SECRET WORD #2
9 x 3 = ___
___ x 8 = 64
66 ÷
SECRET WORD #3
___ ÷ 3 = 12
7 x ___ = 49
42 ÷ ___ = 7
Name:
Date:
UNKNOWN NUMBERS
story problems
Directions: For each story problem below, write the specifi
unknown number. Then, solve for the unknown number.
1 Write a division equation that represents the story pr
Mark is sorting pebbles at the beach. He sorts the pebbl
there are 8 pebbles in each group. How many pebbles are
p = 7x8
7x8=56
2 Write a multiplication equation that represents the story problem
At the grocery story, there are 60 boxes of cereal divided evenly
shelves. How many cereal boxes are on each shelf?
Name:
Date:
UNKNOWN NUMBERS
fish in the sea
Directions: Solve for the unknown number in the equations below. Co
matching number for each answer.
81
0
48
36
10
___ x 4 = 12


Determining an
NOWN NUMBER
ation or division strategy to determine an
UMBER within an equation.
20 ÷ ? = 5
How many groups of 5 can I make from 20?
STRIP DIAGRAMS
Directions: For the equation with an unknown number below, use the strip diagram to solve for the unknown number.
m x 4 = 28
m =
28
UNKNOWN NUMBERS
story problems
Directions: For each story problem below, write
unknown number. Then, solve for the unknown
1
Write a division equation that represe
story
Mark is sorting pebbles at the beach. He sorts the pe
there are 8 pebbles in each group. How many pebbles
p = 7x8
7x8=56
2
Write a multiplication equation that represents the story pr
At the grocery story, there are 60 boxes of cereal divided e
boxes are on each shelf?
UNKNOWN NUMBERS
fish in the sea
Directions: Solve for the unknown number in the equations below. Color the fish with the matching number for each answer.
3
12
81
9
7
0
36
48
3


FISH IN THE BOWL
Directions: Solve for the unknown number in the equations below. Then, find the fish with the matching number for your answer and drag it into the fishbowl.
1 ☐ x 4 = 12
2 2 x ☐ = 20
3 ☐ ÷ 6 = 6
4 18 ÷ ☐ = 9
5 9 x 9 = ☐
6 ☐ x 3 = 24
8
10
2
36
81
3
Determining an
UNKNOWN NUMBER
You can use any multiplication or division strategy to determine
UNKNOWN NUMBER within an equation.
4 x ? = 12 → How many groups of 4 can I make from 12?
I can make 3 groups of 4.
The unknown number is 3.
20 ÷ ? = 5 →
? x 6 = 36 → How many rows of 6 can I make from 36?
I can make 6 rows of 6.
The unknown number is 6.
40 ÷ ? = 8
break the code
SECRET WORD #1
Date:
groups
sea
ems


BREAK THE CODE
Directions: Solve for the unknown numbers in the equations below. For each missing number, find the corresponding letter in the key and write it in the magnifying glass to uncover the secret word.
14 ÷ ☐ = 7
☐ x 4 = 24
18 ÷ 6 = ☐
2 x ☐ = 10
a b c d e f g h i j k l m
6 27 2 0 5 15 4 42 35 12 3 8 6
n o p q r s t u v w x y z
9 10 72 66 9 36 7 11 121 24 16 1 54
UNKNOWN NUMBERS
story problems
Directions: For each story problem below, write the specified type of equation with an unknown number. Then, solve for the unknown number.
UNKNOWN NUMBERS
equal groups
Directions: For the equations with unknown numbers below, circle the pictures to create equal groups. Write the unknown number.
1 3 x m = 24
m = 8
2 14 ÷ k = 2
k = 7
Name:
Date:
UNKNOWN
fish in t
Directions: Solve for the unknown number in the
matching number for each answer.
36
0
81
11
10
48
x 4 = 12
2
5
8
NUMBERS
cod
2 x ___ = 10
25 ÷ ___ = 5
that represents the story problem.
are 60 boxes of cereal divided evenly betwe
oxes are on each shelf?
ation equation that represents the story prob
He has 32 ice cubes and wants
ice cubes should he


UNKNOWN NUMBERS
equal groups
Name:
Date:
Directions: For the equations with unknown numbers below, circle the pictures to create equal groups. Write the unknown number.
1 3 x m = 24
m = 8
2 14 ÷ k = 2
k = 7
28 ÷ r = 7
r = ___
4 6 x 6 = 30
6 = ___
6 15 ÷ w = 3
w = ___
UNKNOWN NUMBERS
story problems
Name:
Date:
UNKNOWN NUMBERS
fish in the sea
Name:
Date:
Directions: Solve for the unknown number in the equations below. Color the fish with the matching number for ea
36
0
11
UNKNOWN NUMBERS
break the code
Name:
Date:
Directions: Solve for the unknown numbers in the equations below to find the corresponding letter in the key and write it in the
secret words.
a b c d e f g
6 27 2 0 5 15
n o p q r s
9 10 72 66 9
14 ÷ ___ = 7
PUZZLE
Directions: Drag the squares to assemble the puzzle by matching the equations along the edges with their corresponding unknown numbers. The outside edges of the puzzle will remain blank. HINT: Nine looks like 9, while six looks like 6. Do not rotate the squares.
8 x ___ = 32
7 x 3 = ___
___ ÷ 3 = 9
9 x 10 = ___
___ ÷ 4 = 9
___ x 2 = 4
___ x 2 = 18
5 x ___ = 15
___ ÷ 3 = 4
8 x ___ = 88
10
7
0
Determining
UNKNOWN NU
You can use any multiplication or division strategy to
UNKNOWN NUMBER within an equation.
Equal Groups
4 x ? = 12 → How many groups of 4 can I make from 12?
Arrays


Name:
Date:
UNKNOWN NU
story prob
Directions: For each story problem
unknown number. Then, solve for
1 Write a division equation
Mark is sorting pebbles
there are 8 pebbles in
2 Write a multiplicatio
At the grocery stor
shelves. How many
3 Write a multiplica
Hans is preparin
amount in each
Determining an
UNKNOWN NUMBER
You can use any multiplication or division strategy to determine an
UNKNOWN NUMBER within an equation.
Equal Groups
4 x ? = 12 → How many groups of 4 can I make from 12?
I can make 3 groups of 4. The unknown number is 3.
20 ÷ ? = 5 → How many groups of 5 can I make from 20?
I can make 4 groups of 5. The unknown number is 4.
Arrays
? x 6 = 36 → How many rows of 6 can I make from 36?
I can make 6 rows of 6. The unknown number is 6.
40 ÷ ? = 8 → How many rows of 8 can I make from 40?
I can make 5 rows of 8. The unknown number is 5.
Number Line
5 x ? = 15 → How many hops of 5 can I make to get to 15?
0 5 10 15 20
I can make 3 hops of 5. The unknown number is 3.
24 ÷ ? = 8 → How many backwards hops of 8 can I make starting at 24?
0 8 16 24 32
I can make 3 backwards hops of 8. The unknown number is 3.
10 5 x ___ = 40

What is an UNKNOWN NUMBER?

An **UNKNOWN NUMBER** is any number in an equation that is **MISSING**

multiplication

___ x 5 = 25
↑ unknown factor

8 x ___ = 16
↑ unknown factor

6 x 4 = ___
↑ unknown product

division

___ ÷ 7 = 3
↑ unknown dividend

36 ÷ ___ = 4
↑ unknown divisor

60 ÷ 5 = ___
↑ unknown quotient

In an equation, an **UNKNOWN NUMBER** can be represented by a:

Blank space

___ x 8 = 64

30 ÷ ___ = 5

Letter

6 x *n* = 48

11 ÷ 3 = *y*

Symbol

8 x ? = 48

△ ÷ 4 = 4

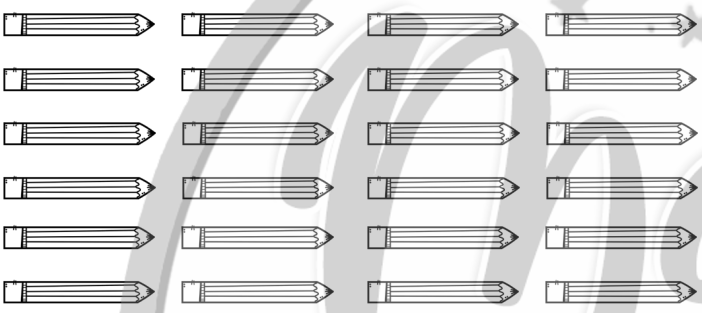
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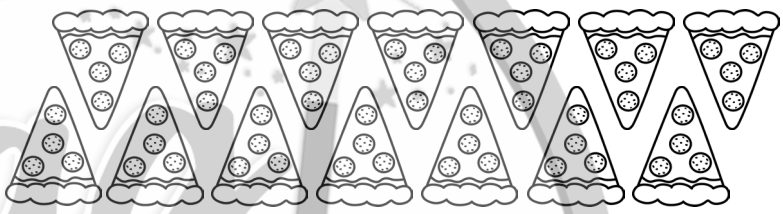
UNKNOWN NUMBERS
equal groups

Directions: For the equations with unknown numbers below, circle the pictures to create equal groups. Write the unknown number.

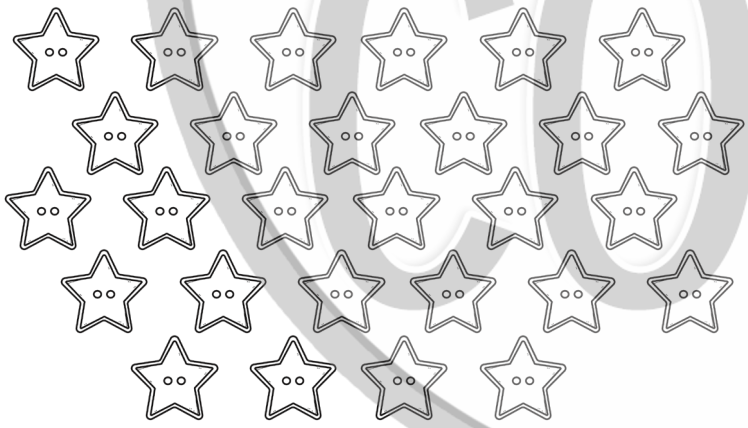
1 $3 \times m = 24$ $m =$ ____



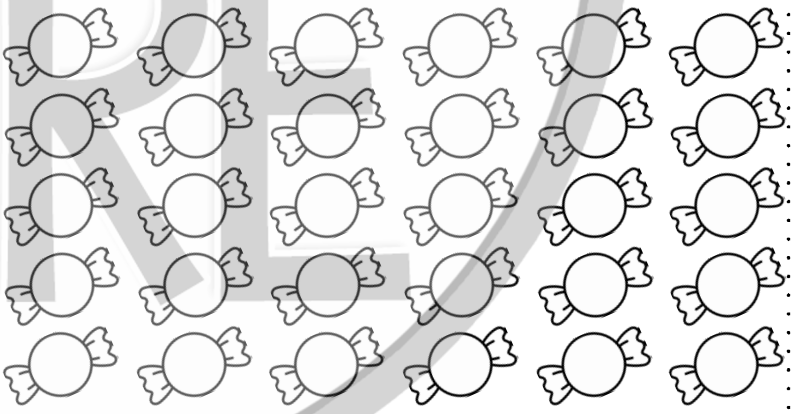
2 $14 \div k = 2$ $k =$ ____



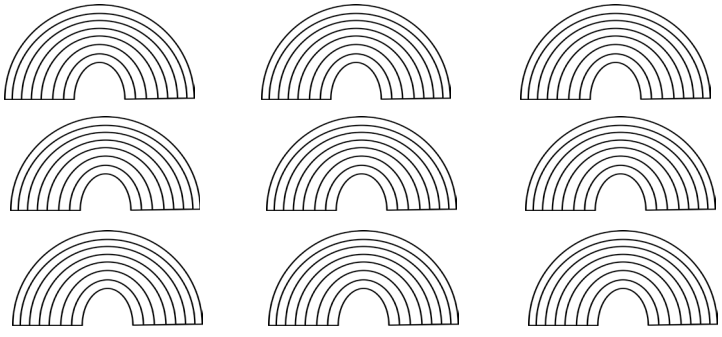
3 $28 \div r = 7$ $r =$ ____



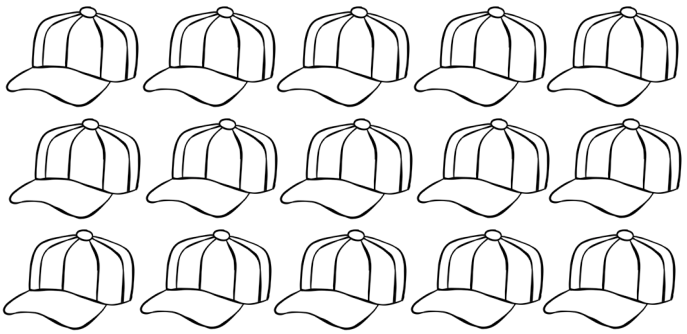
4 $b \times 6 = 30$ $b =$ ____



5 $3 \times e = 9$ $e =$ ____



6 $15 \div w = 3$ $w =$ ____



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Name: _____ Date: _____

UNKNOWN NUMBERS

arrays

Directions: For the equations with unknown numbers below, draw an array to find the missing number. Write the unknown number in the space.

1. 25 ÷ ___ = 5

2. 4 x ___ = 36

3. ___ x 10 = 20

4. 6 x ___ = 42

5. ___ ÷ 7 = 3

6. 32 ÷ ___ = 4

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Name: _____ Date: _____

UNKNOWN NUMBERS
number line hops

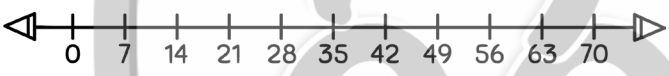
Directions: For the equations with unknown numbers below, use the number line to determine the unknown number.

35 ÷ ? = 7

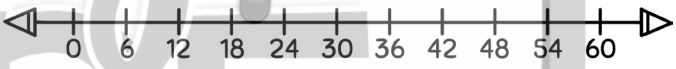


I can jump backwards by seven 5 times. The missing number is 5

1 28 ÷ ___ = 7



2 6 x ___ = 12



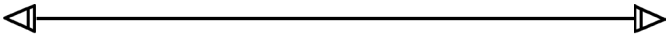
3 ___ x 4 = 20



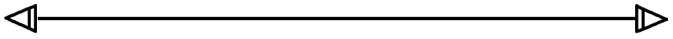
4 7 x ___ = 49



5 ___ ÷ 3 = 9



6 36 ÷ ___ = 6



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Name: _____ Date: _____

UNKNOWN NUMBERS

repeated addition & subtraction

Directions: For the equations with unknown numbers below, use repeated addition or subtraction to find the unknown number.

1. 42 ÷ ___ = 7

2. 8 x ___ = 16

3. ___ x 10 = 30

4. 7 x ___ = 49

5. ___ ÷ 3 = 8

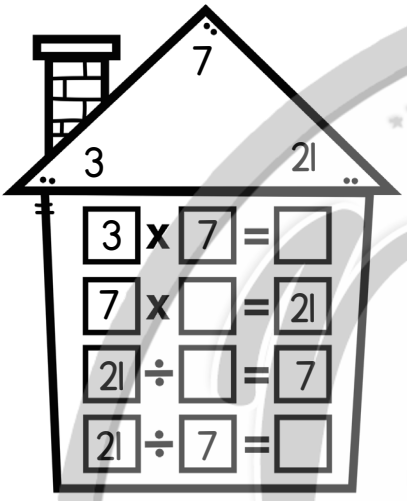
6. 36 ÷ ___ = 12

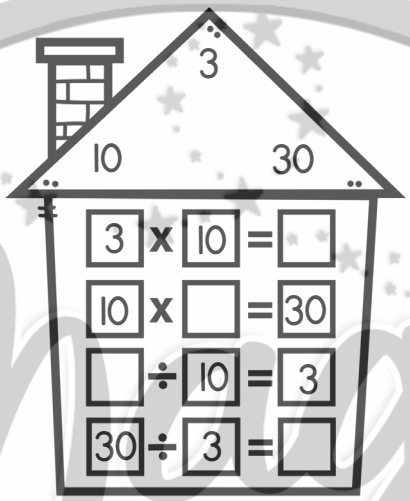
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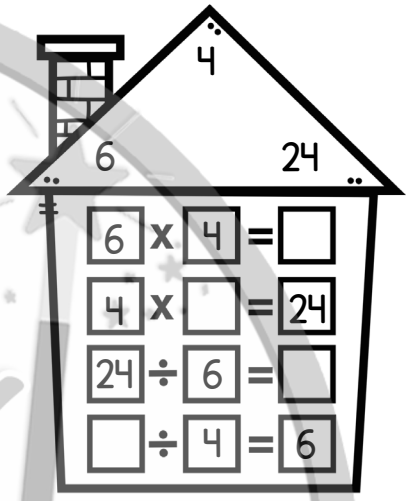
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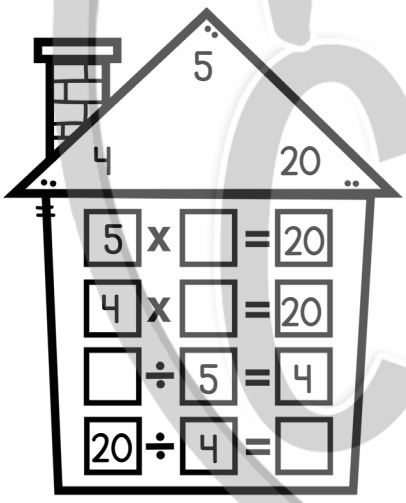
UNKNOWN NUMBERS
fact families

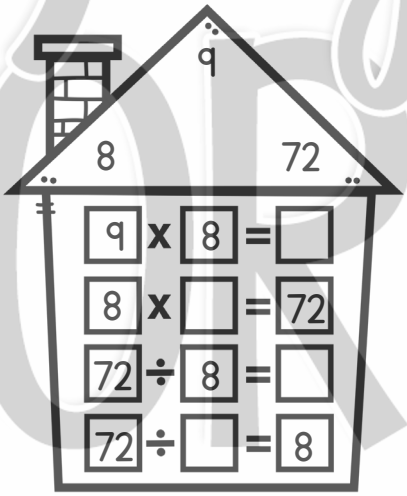
Directions: Use fact families to find the unknown numbers in the equations below.

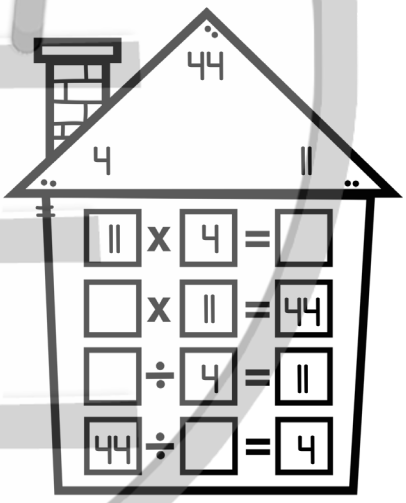


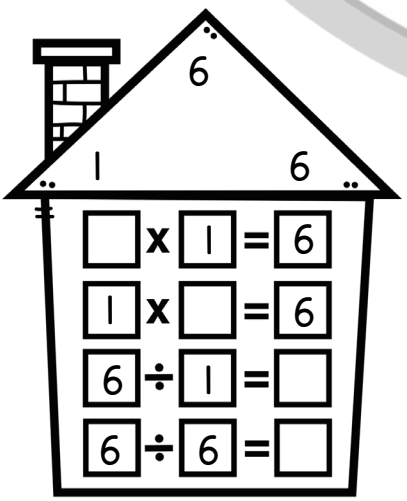


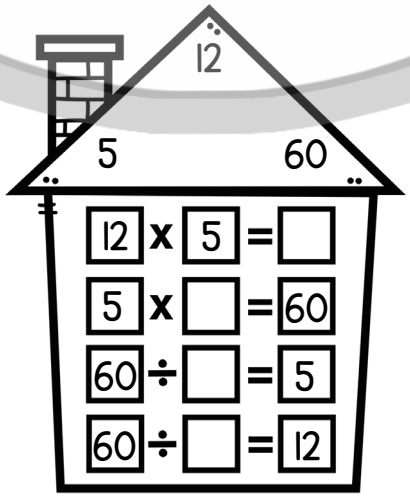


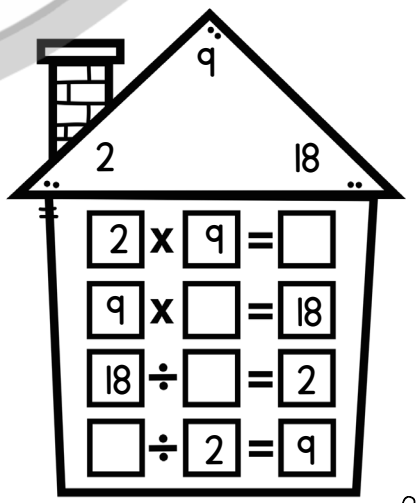












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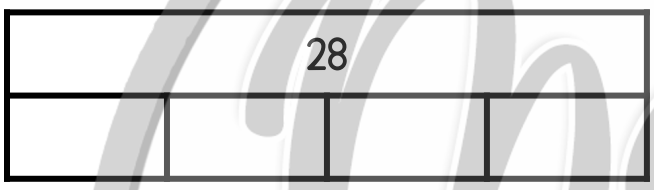
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UNKNOWN NUMBERS

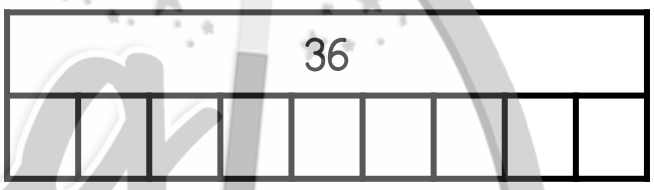
strip diagrams

Directions: For the equations with unknown numbers below, use the strip diagrams to solve for the unknown number.

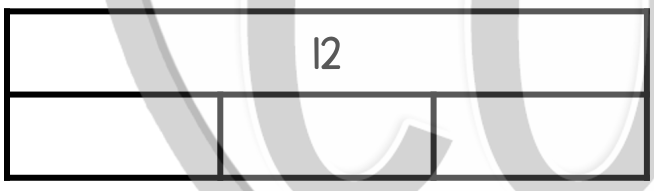
1 $m \times 4 = 28$ $m =$ ____



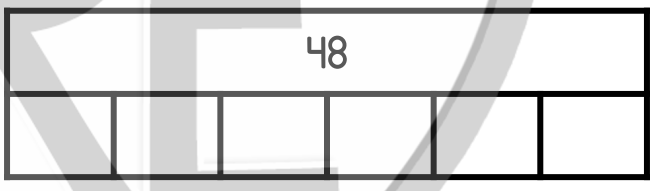
2 $36 \div a = 9$ $a =$ ____



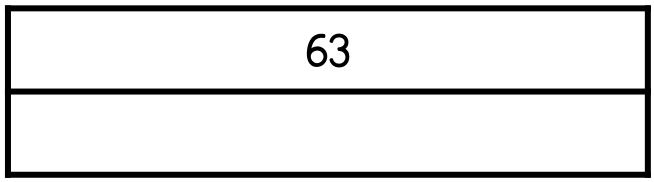
3 $12 \div f = 3$ $f =$ ____



4 $g \times 6 = 48$ $g =$ ____

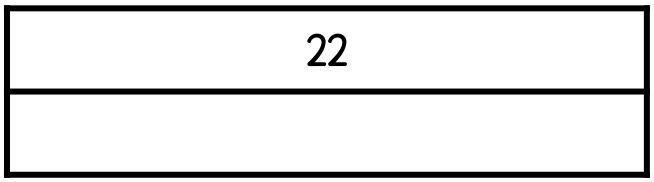


5 $7 \times p = 63$ $p =$ ____



Divide the strip diagram into equal parts to represent the equation, then solve for *p*.

6 $22 \div n = 2$ $n =$ ____



Divide the strip diagram into equal parts to represent the equation, then solve for *n*.

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Name: _____ Date: _____

UNKNOWN NUMBERS

number bonds

Directions: For the equations with unknown numbers below, draw an addition or multiplication number bond to determine the unknown number.

1. 8 x ___ = 64

2. 4 x ___ = 20

3. ___ x 2 = 24

4. 5 x ___ = 40

5. ___ x 2 = 10

6. ___ x 7 = 42

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Name: _____ Date: _____

UNKNOWN NUMBERS
division

Directions: Solve for the unknown numbers in the division equations below.

1. ___ ÷ 3 = 12
2. 6 ÷ ___ = 3
3. ___ ÷ 7 = 6
4. 12 ÷ ___ = 4
5. 16 ÷ 2 = ___
6. ___ ÷ 6 = 9
7. ___ ÷ 7 = 12
8. 28 ÷ ___ = 4
9. 60 ÷ 10 = ___
10. 56 ÷ ___ = 8
11. ___ ÷ 12 = 2
12. 30 ÷ ___ = 5
13. ___ ÷ 4 = 11
14. 72 ÷ ___ = 8
15. 15 ÷ 3 = ___
16. 8 ÷ ___ = 4
17. ___ ÷ 5 = 11
18. 12 ÷ ___ = 6

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Name: _____ Date: _____

UNKNOWN NUMBERS
story problems

Directions: For each story problem below, write the specified type of equation with an unknown number. Then, solve for the unknown number.



1. Write a division equation that represents the story problem.

   Mark is sorting pebbles at the beach. He sorts the pebbles into 7 groups, and there are 8 pebbles in each group. How many pebbles are there in all?



2. Write a multiplication equation that represents the story problem.

   At the grocery story, there are 60 boxes of cereal divided evenly between 6 shelves. How many cereal boxes are on each shelf?



3. Write a multiplication equation that represents the story problem.

   Hans is preparing lemonade. He has 32 ice cubes and wants to put an equal amount in each of 8 glasses. How many ice cubes should he place in each glass?

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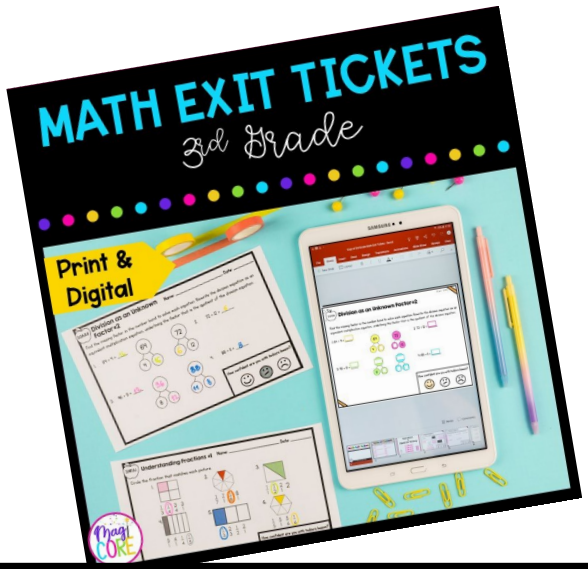
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