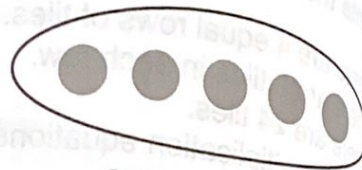# Algebra • Division Rules for 1 and 0

Division rules can help you understand how to divide with 1 and 0.

Rule A: Any number divided by 1 equals that number.

$5 \div 1 = 5$ or $1\overline{)5}^{\,5}$

One group of 5

Rule B: Any number (except 0) divided by itself equals 1.

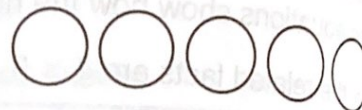$5 \div 5 = 1$ or $5\overline{)5}^{\,1}$

Five groups of 1

Rule C: Zero divided by any number (except 0) equals 0.

$0 \div 5 = 0$ or $5\overline{)0}^{\,0}$

Five groups of 0

Rule D: You cannot divide by 0.

Find the quotient.

1. $4 \div 1 =$ ____

2. $2 \div 2 =$ ____

3. $8 \div 1 =$ ____

4. $7 \div 7 =$ ____

5. $0 \div 8 =$ ____

6. $0 \div 9 =$ ____

7. $4 \div 4 =$ ____

8. $6 \div 1 =$ ____

9. $6 \div 6 =$ ____

10. $0 \div 4 =$ ____

11. $0 \div 2 =$ ____

12. $3 \div 1 =$ ____
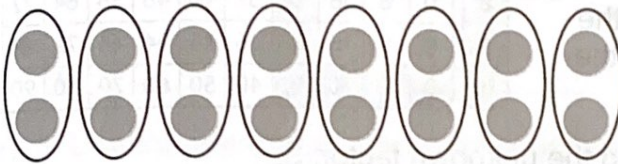
Name _____

Divide by 2

You can draw a picture to show how to divide.

Find the quotient. 16 ÷ 2

Step 1 Draw 16 counters.

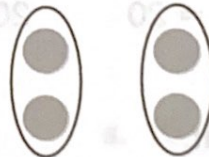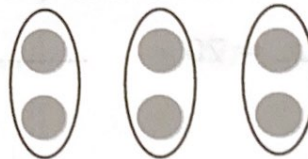**Step 2** Circle groups of 2. Continue circling groups of 2 until all 16 counters are in groups.

There are **8** groups of **2**.
So, 16 ÷ 2 = **8**.

Write a division equation for the picture.

1.

2.

_____   _____

Name _____

Divide by 10

You can use a multiplication table to divide by 10.

Find the quotient. 30 ÷ 10

Think of a related multiplication fact.

$10 \times \blacksquare = 30$

Step 1 Find the row for the factor, 10. This number is the divisor.

Step 2 Look across the row to find the product, 30. This number is the dividend.

Step 3 Look up to the top row to find the unknown factor, 3. This is the quotient.

Since $10 \times 3 = 30$, then $30 \div 10 = 3$.

So, $30 \div 10 = 3$.

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Find the unknown factor and quotient.

1. $10 \times \underline{\hspace{1cm}} = 70$ $\underline{\hspace{1cm}} = 70 \div 10$

2. $10 \times \underline{\hspace{1cm}} = 20$ $20 \div 10 = \underline{\hspace{1cm}}$

Find the quotient.

3. $60 \div 10 = \underline{\hspace{1cm}}$

4. $80 \div 10 = \underline{\hspace{1cm}}$

5. $100 \div 10 = \underline{\hspace{1cm}}$

6. $10\overline{)50}$

7. $10\overline{)90}$

8. $10\overline{)30}$

Divide by 5

You can use a hundred chart and count up to help you divide.

Find the quotient. 30 ÷ 5

Step 1 Count up by 5s until you reach 30.
Circle the numbers you say in
the count.

Step 2 Count the number of times you
count up.

5,   10,   15,   _____,   _____,   _____

1   2, _____, _____, _____, _____

1	2	3	4	⑤	6	7	8	9	⑩
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Step 3 Use the number of times you count up
to complete the equation.

You counted up by 5 _____ times.

So, 30 ÷ 5 = _____.

Use the hundred chart and count up to solve.

1. 20 ÷ 5 = _____

2. 35 ÷ 5 = _____

3. 40 ÷ 5 = _____

Find the quotient.

4. 25 ÷ 5 = _____

5. _____ = 45 ÷ 5

6. 10 ÷ 5 = _____

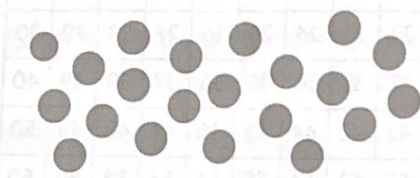7. _____ = 15 ÷ 5

8. 50 ÷ 5 = _____

9. _____ = 5 ÷ 5

Name _____

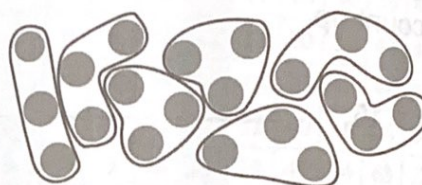# Divide by 3

You can draw a picture to show how to divide.

Find the quotient.

21 ÷ 3

Step 1 Draw 21 counters to show the dividend.

Step 2 Circle groups of 3 to show the divisor.

Step 3 Count the groups.

There are **7** groups of 3. So, the quotient is **7**.

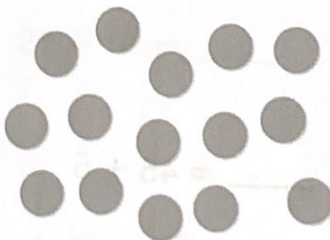You can use a related multiplication fact to check your answer.

Think: $7 \times 3 = 21$

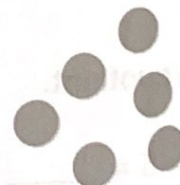So, $21 \div 3 = 7$.

Circle groups of 3 to find the quotient.

1. $9 \div 3 =$ ____

2. $15 \div 3 =$ ____

3. ____ $= 6 \div 3$

Find the quotient.

4. $12 \div 3 =$ ____

5. $18 \div 3 =$ ____

6. $24 \div 3 =$ ____

7. $27 \div 3 =$ ____

Name _____

Divide by 4

One way to divide is to count back on a number line. Start at 12.
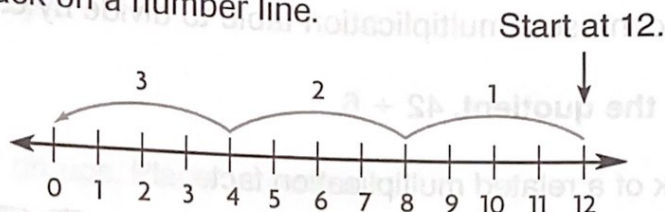
Find the quotient.
12 ÷ 4

```
    3          2          1
 ←┌──┐──────┌──┐──────┌──┐──→
  0 1 2 3 4 5 6 7 8 9 10 11 12
```

Count back by 4s as many times as you can until you reach 0.

Count the number of times you jumped back 4. **3 times**

So, 12 ÷ 4 = **3**.

Find the quotient.
32 ÷ 4
Start at 32.

```
   8      7     6     5     4      3     2     1
 ←┌─┐───┌─┐──┌─┐──┌─┐──┌─┐───┌─┐──┌─┐──┌─┐─→
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
```
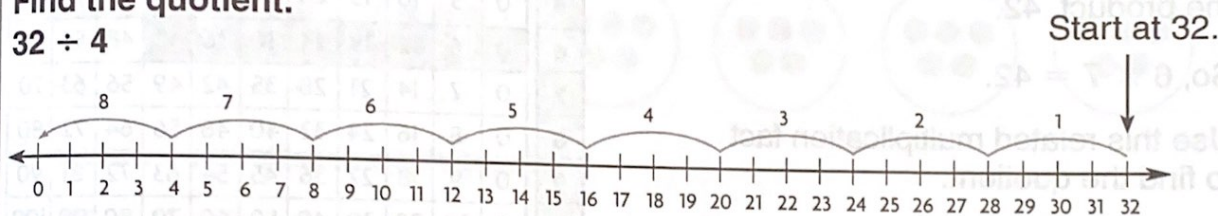
Count back by 4s as many times as you can until you reach 0.

Count the number of times you jumped back 4. **8 times**

So, 32 ÷ 4 = **8**.

Find the quotient.

1. 24 ÷ 4 = _____   **2.** _____ = 12 ÷ 3   **3.** 16 ÷ 4 = _____   **4.** _____ = 8 ÷ 4

5. 4 ÷ 2 = _____   **6.** _____ = 28 ÷ 4   **7.** 36 ÷ 4 = _____   **8.** 20 ÷ 4 = _____

Find the unknown number.

9. 4 ÷ 4 = ▲   **10.** 40 ÷ 10 = t   **11.** 8 ÷ 2 = g   **12.** 21 ÷ 7 = m

▲ = _____   t = _____   g = _____   m = _____

Name _____

Divide by 6

You can use a multiplication table to divide by 6.

Find the quotient. 42 ÷ 6

Think of a related multiplication fact.
6 × ■ = 42

Find the row for the factor, 6.

Look right to find the product, 42.

Look up to find the unknown factor, 7.

7 is the factor you multiply by 6 to get the product, 42.

So, 6 × 7 = 42.

Use this related multiplication fact to find the quotient.

Since 6 × 7 = 42, then 42 ÷ 6 = 7.

So, 42 ÷ 6 = 7.

×	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Find the unknown factor and quotient.

1. 6 × ____ = 30   30 ÷ 6 = ____

2. 6 × ____ = 48   48 ÷ 6 = ____

3. 6 × ____ = 18   18 ÷ 6 = ____

4. 6 × ____ = 24   24 ÷ 6 = ____

Find the quotient.

5. 6 ÷ 6 = ____

6. 48 ÷ 6 = ____

7. 54 ÷ 6 = ____

8. 12 ÷ 6 = ____

9. 0 ÷ 6 = ____

10. 36 ÷ 6 = ____

11. 6 ÷ 1 = ____

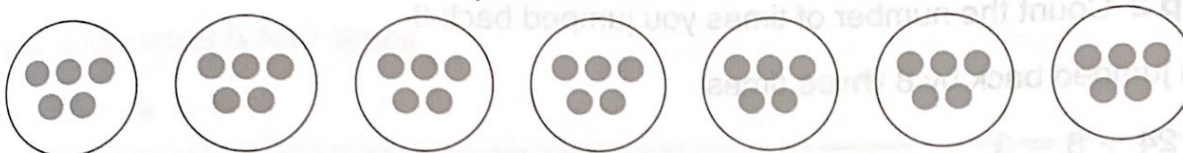12. 18 ÷ 6 = ____

Divide by 7

You can use counters to divide by 7.

Find the quotient. $35 \div 7$

Step 1 Draw 7 circles to show 7 groups. Place 1 counter in each group.

Step 2 Continue placing 1 counter at a time in each group until all 35 counters are placed.

There are **5** counters in each group.

So, $35 \div 7 = 5$.

Find the unknown factor and quotient.

1. $7 \times$ ____ $= 63$ $63 \div 7 =$ ____

2. $7 \times$ ____ $= 7$ $7 \div 7 =$ ____

3. $7 \times$ ____ $= 14$ $14 \div 7 =$ ____

4. $7 \times$ ____ $= 28$ $28 \div 7 =$ ____

Find the quotient.

5. ____ $= 56 \div 7$

6. $21 \div 7 =$ ____

7. $42 \div 7 =$ ____

8. $28 \div 7 =$ ____

9. ____ $= 35 \div 7$

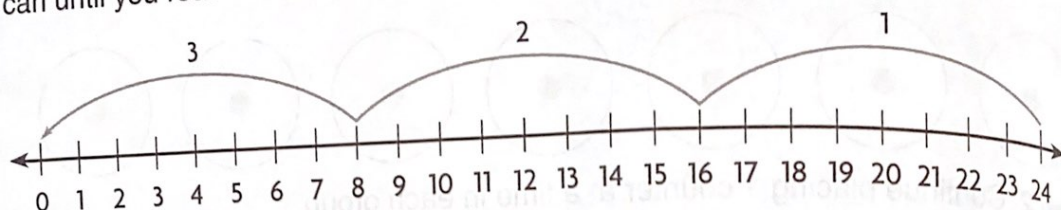10. $63 \div 7 =$ ____

11. $49 \div 7 =$ ____

12. $70 \div 7 =$ ____

Name _____

Divide by 8

You can use a number line to divide by 8.

Find the quotient. 24 ÷ 8

Step 1 Start at 24. Count back by 8s as many times as you can until you reach 0. Draw the jumps on the number line.

Step 2 Count the number of times you jumped back 8.

You jumped back by 8 **three** times.

So, 24 ÷ 8 = 3.

Find the unknown factor and quotient.

1. ____ × 8 = 72   72 ÷ 8 = ____ | 2. 8 × ____ = 48   48 ÷ 8 = __

3. 8 × ____ = 40   40 ÷ 8 = ____ | 4. ____ × 8 = 16   16 ÷ 8 = __

Find the quotient.

5. 32 ÷ 8 = ____

6. ____ = 8 ÷ 8

7. 64 ÷ 8 = ____

8. 56 ÷ 8 = ____

9. ____ = 16 ÷ 8

10. 40 ÷ 8 = ____

11. 24 ÷ 8 = ____

12. ____ = 72 ÷ 8

13. 48 ÷ 8 = ____

Reteach
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Grade

Name _____

Divide by 9

You can use repeated subtraction to divide by 9.

Find the quotient.

36 ÷ 9

Step 1 Start with 36. Subtract 9 as many times as you can until you reach 0. Write the answers.

$$\begin{array}{c} 36 \\ -9 \\ \hline 27 \end{array} \rightarrow \begin{array}{c} 27 \\ -9 \\ \hline 18 \end{array} \rightarrow \begin{array}{c} 18 \\ -9 \\ \hline 9 \end{array} \rightarrow \begin{array}{c} 9 \\ -9 \\ \hline 0 \end{array}$$

Step 2 Count the number of times you subtract 9.

You subtracted 9 **four** times.

So, 36 ÷ 9 = 4.

Find the quotient.

1. 9 ÷ 9 = _____

2. 27 ÷ 9 = _____

3. 18 ÷ 9 = _____

4. 36 ÷ 9 = _____

5. _____ = 72 ÷ 9

6. _____ = 63 ÷ 9

7. 45 ÷ 9 = _____

8. _____ = 18 ÷ 9

9. _____ = 54 ÷ 9

10. 9)‾63‾

11. 9)‾81‾

12. 9)‾36‾

13. 8)‾48‾

14. 4)‾36‾

15. 7)‾28‾

Problem Solving • Two-Step Problems

Chloe bought 5 sets of books. Each set had the same
number of books. She donated 9 books to her school.
Now she has 26 books left. How many books
were in each set that Chloe bought?

Read the Problem	Solve the Problem
What do I need to find? I need to find how many __books__ were in each ___set___.	First, begin with the number of books left. Add the number of books donated. books books t, total left donated number of books ↓ ↓ ↓ $26 \; + \; 9 \; = \; t$ $\underline{35} \; = \; t$
What information do I need to use? I need to use the information given: Chloe bought _5_ sets of books. She donated _9_ books. She has _26_ books left.	Then divide to find the number of books in each set. t, total sets of s, books number of books in each books set ↓ ↓ ↓ $35 \; \div \; 5 \; = \; s$ $\underline{7} \; = \; s$
How will I use the information? I will use the information to __act out__ the problem.	So, _7_ books were in each set.

Solve the problem.

1. Jackie had 6 equal packs of
   pencils. Her friend gave her
   4 more pencils. Now she has
   52 pencils. How many pencils
   were in each pack?

   _____

2. Tony had 4 equal sets of sports
   cards. He gave his friends 5 cards.
   Now he has 31 cards. How many
   cards were in each set?

   _____

Name _____

Order of Operations

Danny buys a marker for $4. He also buys 5 pens for $2 each. How much money does he spend?

You can write $4 + 5 \times 2 = c$ to describe and solve the problem.

Find $4 + 5 \times 2 = c$.

When there is more than one type of operation in an equation, use the **order of operations**, or the set of rules for the order in which to do operations.

Order of Operations
First: Multiply and divide from left to right.
Then: Add and subtract from left to right.

Step 1 Multiply from left to right.

$4 + 5 \times 2 = c$

multiply

$4 + $10 = c$

So, Danny spends $14.

Step 2 Next, add from left to right.

$4 + $10 = c$

add

$14 = c$

Write *correct* if the operations are listed in the correct order. If not correct, write the correct order of operations.

1. $5 + 6 \times 3$ add, multiply

_____

2. $20 \div 4 - 3$ divide, subtract

_____

Follow the order of operations to find the unknown number.

3. $9 - 7 + 2 = k$

$k =$ _____

4. $8 + 2 \times 5 = m$

$m =$ _____

5. $7 \times 8 - 6 = g$

$g =$ _____

6. $16 + 4 \div 2 = s$

$s =$ _____

7. $12 - 6 \div 2 = y$

$y =$ _____

8. $36 \div 6 + 13 = f$

$f =$ _____