North Penn School District

Elementary Math Parent Letter

Grade 3

Unit 4 – Chapter 7: Division Facts and Strategies

Examples for each lesson:

Lesson 7.1

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.

More information on this strategy is available on Animated Math Model #27.

Lesson 7.2

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 × ■ = 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 × 3 = 30, then 30 ÷ 10 = 3.

So, 30 ÷ 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

Lesson 7.3

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, _____, _____, _____, _____

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

You counted up by 5 _____ times.

So, 30 ÷ 5 = _____.

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

More information on this strategy is available on Animated Math Model #27.

Lesson 7.4

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, $21 \div 3 = 7$.

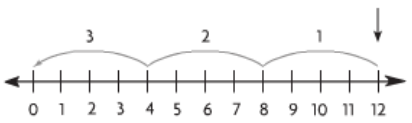
More information on this strategy is available on Animated Math Model #28.

Lesson 7.5

Divide by 4

One way to divide is to count back on a number line.

Find the quotient.
12 ÷ 4

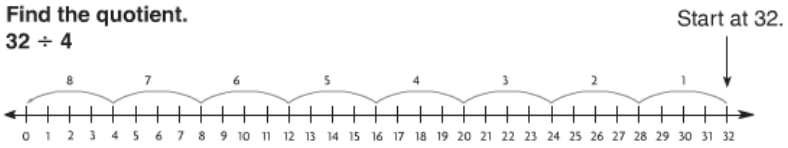


Count back by 4s as many times as you can until you reach 0.

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

So, 12 ÷ 4 = 3.

Find the quotient.
32 ÷ 4



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.

More information on this strategy is available on Animated Math Model #28.

Lesson 7.6

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

More information on this strategy is available on Animated Math Model #29.

Lesson 7.7

Divide by 7

You can use counters to divide by 7.

Find the quotient. 35 ÷ 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 ÷ 7 = 5.

More information on this strategy is available on Animated Math Model #29.

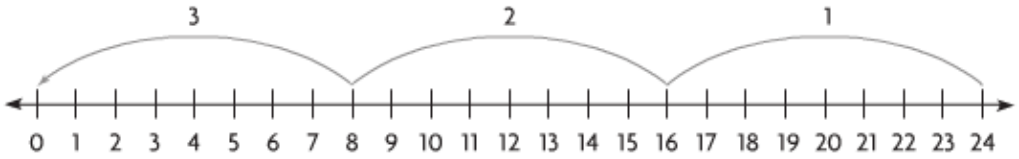
Lesson 7.8

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.

More information on this strategy is available on Animated Math Model #29.

Lesson 7.9

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.

Step 2 Count the number of times you subtract 9.

You subtracted 9 four times.

So, 36 ÷ 9 = 4.

Lesson 7.10

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 left → 26 + books donated → 9 = t, total number of books 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 number of books → 35 ÷ sets of books → 5 = s, books in each set 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.

Lesson 7.11

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.

$\$4 + \underbrace{5 \times \$2}_{\text{multiply}} = c$

$\$4 + \$10 = c$

Step 2 Next, add from left to right.

$\underbrace{\$4 + \$10}_{\text{add}} = c$

$\$14 = c$

So, Danny spends \$14 .

Vocabulary

Order of operations – a special set of rules that gives the order in which calculations are done to solve a problem

Divide – to separate into equal groups

Dividend – the number that is to be divided in a division problem

Divisor -- the number that divides the dividend

Factor – a number that is multiplied by another number to find a product

Inverse operations – opposite operations, or operations that undo one another, such as addition and subtraction or multiplication and division

Product – the answer in a multiplication problem

Quotient – the number, not including the remainder, that results from division

Related facts – a set of related multiplication and division equations