Merit Tutoring

Year 4 Mathematics

Division Methods Workshop

Worksheet 17: Partitioning & Mental Strategies

Name: _____ **Date:** _____

Section 1: Fluency - The Split Strategy

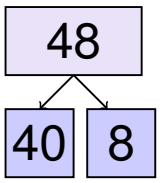
Break numbers into friendly parts to make division easier.

Strategy Reminder: To divide using the split strategy, break the number into parts that are easy to divide, then add the results.

1. Solve

$$48 \div 4$$

by splitting 48 into 40 and 8.



$40 \div 4 =$ _____

$8 \div 4 =$ _____

_____ + _____ = _____

Answer: _____

2. Use the split strategy to solve

$$63 \div 3$$

. Split 63 into 60 and 3.

Working: _____

Answer: _____

3. Solve

$$84 \div 4$$

by splitting 84 into 80 and 4.

Working: _____

Answer: _____

4. Use partitioning to solve

$$96 \div 6$$

. Split 96 into 60 and 36.

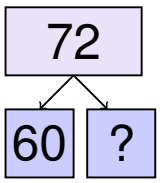
Working: _____

Answer: _____

5. Complete this partitioning tree for

$$72 \div 3$$

:



Missing number: _____

$$60 \div 3 = \_\_\_\_\_$$

$$12 \div 3 = \_\_\_\_\_$$

Answer: _____

6. Solve

$$55 \div 5$$

by splitting 55 into 50 and 5.

Answer: _____

7. Use the split strategy for

$$68 \div 4$$

. Split 68 into 60 and 8.

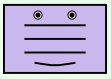
Answer: _____

8. Solve

$$95 \div 5$$

using partitioning. (Hint: Split into 50 and 45)

Answer: _____



Master of Methods!

Why did the number love being split up?

Because it made division so much easier!

Section 2: Reasoning - Using Multiplication to Divide

Use your multiplication facts to help you divide.

9. I know

$$5 \times 10 = 50$$

and

$$5 \times 3 = 15$$

. How can I use this to solve

$$65 \div 5$$

?

Explanation: _____

_____

Answer: _____

10. To solve

$$56 \div 8$$

, think: ”How many 8s are in 56?”
I know

$$8 \times 7 = 56$$

, so

$$56 \div 8 = \text{?}$$

Answer: _____

11. Complete: If

$$6 \times 9 = 54$$

, then

$$54 \div 6 = \text{?}$$

Answer: _____

12. Use your 7 times table to solve

$$63 \div 7$$

.

Which multiplication fact helps? _____

Answer: _____

13. To divide 72 by 8, I can think: ”8 times what equals 72?”

$$8 \times \_\_\_\_\_ = 72$$

So

$$72 \div 8 = \_\_\_\_\_$$

14. Solve

$$81 \div 9$$

by thinking of your 9 times table.

Answer: _____

15. Complete the fact family:

$$7 \times 8 = 56$$

$$8 \times 7 = 56$$

$$56 \div 7 = \_\_\_\_\_$$

$$56 \div 8 = \_\_\_\_\_$$

16. If I know

$$9 \times 6 = 54$$

, what two division facts can I write?

Division fact 1: _____

Division fact 2: _____

Fact Family Hero!

Why do multiplication and division get along so well?

Because they're in the same family!

Section 3: Fluency - Division with Larger Numbers

Apply your strategies to divide larger numbers by single digits.

17. Calculate:

$$120 \div 3$$

Answer: _____

18. Calculate:

$$200 \div 4$$

Answer: _____

19. Solve:

$$180 \div 6$$

Answer: _____

20. Calculate:

$$150 \div 5$$

Answer: _____

21. Solve:

$$240 \div 8$$

Answer: _____

22. Calculate:

$$210 \div 7$$

Answer: _____

23. Solve:

$$270 \div 9$$

Answer: _____

24. Challenge:

$$360 \div 6$$

Hint: Think of 360 as 300 + 60

Answer: _____

Division Whiz!

Why did the big number love division?

Because it got to share with everyone!

Excellent work! You're mastering mental division strategies!

Answer Key

Worksheet 17: Partitioning & Mental Strategies

Section 1: Fluency - The Split Strategy

1.

$$40 \div 4 = \mathbf{10}$$

$$8 \div 4 = \mathbf{2}$$

$$10 + 2 = \mathbf{12}$$

Answer: **12**

2. Working:

$$60 \div 3 = 20$$

and

$$3 \div 3 = 1$$

, so

$$20 + 1 = 21$$

Answer: **21**

3. Working:

$$80 \div 4 = 20$$

and

$$4 \div 4 = 1$$

, so

$$20 + 1 = 21$$

Answer: **21**

4. Working:

$$60 \div 6 = 10$$

and

$$36 \div 6 = 6$$

, so

$$10 + 6 = 16$$

Answer: **16**

5. Missing number: **12**

$$60 \div 3 = \mathbf{20}$$

$$12 \div 3 = \mathbf{4}$$

Answer: **24**

6. Answer: **11**

Working:

$$50 \div 5 = 10$$

and

$$5 \div 5 = 1$$

, so

$$10 + 1 = 11$$

7. Answer: **17**

Working:

$$60 \div 4 = 15$$

and

$$8 \div 4 = 2$$

, so

$$15 + 2 = 17$$

8. Answer: **19**

Working:

$$50 \div 5 = 10$$

and

$$45 \div 5 = 9$$

, so

$$10 + 9 = 19$$

Section 2: Reasoning - Using Multiplication to Divide

9. Explanation: **I can add 50 and 15 to get 65. Since**

$$5 \times 10 = 50$$

and

$$5 \times 3 = 15$$

, that means

$$5 \times 13 = 65$$

. So

$$65 \div 5 = 13$$

.

Answer: **13**

10. Answer: **7**

11. Answer: **9**

12. Multiplication fact:

$$7 \times 9 = 63$$

Answer: **9**

13.

$$8 \times \mathbf{9} = 72$$

So

$$72 \div 8 = \mathbf{9}$$

14. Answer: **9**

(Since

$$9 \times 9 = 81$$

)

15.

$$56 \div 7 = \mathbf{8}$$

$$56 \div 8 = \mathbf{7}$$

16. Division fact 1:

$$54 \div 9 = 6$$

Division fact 2:

$$54 \div 6 = 9$$

Section 3: Fluency - Division with Larger Numbers

17. Answer: **40**

(

$$120 \div 3 = 40$$

or

$$3 \times 40 = 120$$

)

18. Answer: **50**

19. Answer: **30**

20. Answer: **30**

21. Answer: **30**

22. Answer: **30**

23. Answer: **30**

24. Answer: **60**

Working:

$$300 \div 6 = 50$$

and

$$60 \div 6 = 10$$

, so

$$50 + 10 = 60$$

Year 4 Mathematics

Division Methods Workshop

Worksheet 18: Short Division Algorithm

Name: _____ **Date:** _____

Section 1: Fluency - Formal Short Division (Bus Stop Method)

Use the short division algorithm to solve these problems.

Method Reminder: In the 'bus stop' method, the divisor goes outside, the dividend goes inside.

1. Calculate using short division:

$3\overline{)36}$

Answer: _____

2. Calculate using short division:

$4\overline{)84}$

Answer: _____

3. Calculate using short division:

$5\overline{)65}$

Answer: _____

4. Calculate using short division:

$2\overline{)68}$

Answer: _____

5. Calculate using short division:

$6\overline{)72}$

Answer: _____

6. Calculate using short division:

$3\overline{)96}$

Answer: _____

7. Calculate using short division:

$4\overline{)92}$

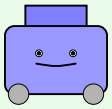
Answer: _____

8. Calculate:

$$88 \div 8$$

using the bus stop method.

Answer: _____



Bus Stop Champion!

Why did the division problem wait at the bus stop?

Because it was ready to be divided into equal parts!

Section 2: Problem Solving - Practical Situations

Apply division to solve real-world problems.

9. A 96cm piece of ribbon is cut into 3 equal lengths. How long is each piece?

Answer: _____

10. There are 84 students who need to be divided equally into 4 classrooms. How many students will be in each classroom?

Answer: _____

11. A baker makes 72 muffins and packs them equally into 6 boxes. How many muffins are in each box?

Answer: _____

12. A farmer collects 95 eggs and puts them equally into 5 cartons. How many eggs are in each carton?

Answer: _____

13. A rope is 84 metres long. It is cut into 7 equal pieces. How long is each piece?

Answer: _____

14. A group of 48 children are arranged equally into 8 teams. How many

children are in each team?

Answer: _____

15. A teacher has 63 pencils to share equally among 9 students. How many pencils does each student get?

Answer: _____

16. A box of 96 chocolates is divided equally among 4 friends. How many chocolates does each friend receive?

Answer: _____

Problem Solver Supreme!

Why did the student eat his division homework?
Because the teacher said it was a piece of cake!

Section 3: Challenge - Missing Numbers in Division

Use your division knowledge to find missing numbers.

17. Fill in the missing number in this short division:

$2\overline{)\,?8\,} = 24$

Missing number: _____

18. What number is missing?

$3\overline{)\,7?\,} = 24$

Missing number: _____

19. Complete this division:

$$\square \div 5 = 16$$

Missing number: _____

20. Find the missing divisor:

$$72 \div \square = 9$$

Missing number: _____

21. What number completes this division?

$?\overline{)\,56\,} = 8$

Missing number: _____

22. Challenge: Find both missing numbers:

$$\square \div \square = 12$$

One possible answer where the divisor is 6:

Dividend: _____ Divisor: _____

23. If

$$84 \div 4 = 21$$

, what is

$$168 \div 4$$

?

Hint: 168 is double 84

Answer: _____

Detective Division!

Why did the missing number love division puzzles?

Because it was always looking for its place!

Brilliant work! You've mastered division methods!

Answer Key

Worksheet 18: Short Division Algorithm

Section 1: Fluency - Formal Short Division (Bus Stop Method)

1. Answer: **12**
Working:

$$36 \div 3 = 12$$

2. Answer: **21**
Working:

$$84 \div 4 = 21$$

3. Answer: **13**
Working:

$$65 \div 5 = 13$$

4. Answer: **34**
Working:

$$68 \div 2 = 34$$

5. Answer: **12**
Working:

$$72 \div 6 = 12$$

6. Answer: **32**
Working:

$$96 \div 3 = 32$$

7. Answer: **23**
Working:

$$92 \div 4 = 23$$

8. Answer: **11**

Working:

$$88 \div 8 = 11$$

Section 2: Problem Solving - Practical Situations

9. Answer: **32cm**
Working:

$$96 \div 3 = 32$$

10. Answer: **21 students**
Working:

$$84 \div 4 = 21$$

11. Answer: **12 muffins**
Working:

$$72 \div 6 = 12$$

12. Answer: **19 eggs**
Working:

$$95 \div 5 = 19$$

13. Answer: **12 metres**
Working:

$$84 \div 7 = 12$$

14. Answer: **6 children**
Working:

$$48 \div 8 = 6$$

15. Answer: **7 pencils**
Working:

$$63 \div 9 = 7$$

16. Answer: **24 chocolates**
Working:

$$96 \div 4 = 24$$

Section 3: Challenge - Missing Numbers in Division

17. Missing number: **4**
Working:

$$48 \div 2 = 24$$

, so the missing digit is 4
18. Missing number: **2**
Working:

$$72 \div 3 = 24$$

, so the missing digit is 2
19. Missing number: **80**
Working:

$$16 \times 5 = 80$$

20. Missing number: **8**
Working:

$$72 \div 8 = 9$$

or

$$9 \times 8 = 72$$

21. Missing number: **7**
Working:

$$56 \div 7 = 8$$

or

$$8 \times 7 = 56$$

22. Dividend: **72** Divisor: **6**
Working:

$$12 \times 6 = 72$$

(Other answers possible:

$$24 \div 2 = 12$$

,

$$36 \div 3 = 12$$

,

$$48 \div 4 = 12$$

,

$$60 \div 5 = 12$$

,

$$84 \div 7 = 12$$

, etc.)

23. Answer: **42**

Working: Since 168 is double 84, the answer is double 21, which is 42

Phenomenal Performance!

You've mastered division methods and strategies!

Keep practicing and you'll continue to improve your efficiency!