Year 4 Mathematics

Times Tables Workshop

Worksheet 11: Fluency & Recall

Name: ______________________ **Date:** ______________

Section 1: Fluency - Speed Drills

Complete these multiplication facts as quickly as you can. Aim for accuracy and speed!

1.

$$6 \times 7 = ?$$

Answer: ______________________________

2.

$$8 \times 9 = ?$$

Answer: ______________________________

3.

$$4 \times 5 = ?$$

Answer: ______________________________

4.

$$7 \times 8 = ?$$

Answer: ______________________________

5.

$$9 \times 6 = ?$$

Answer: ______________________________

6.

$$3 \times 8 = ?$$

Answer: ______________________________

7.

$$5 \times 9 = ?$$

Answer: ______________________________

8.

$$7 \times 6 = ?$$

Answer: ______________________________

9.

$$8 \times 4 = ?$$

Answer: ______________________________

10.

$$9 \times 9 = ?$$

Answer: ______________________________

11.

$$6 \times 8 = ?$$

Answer: ______________________________

12.

$$7 \times 4 = ?$$

Answer: ______________________________

13.

$$9 \times 3 = ?$$

Answer: ______________________________

14.

$$8 \times 7 = ?$$

Answer: ______________________________

15.

$$5 \times 6 = ?$$

Answer: ______________________________

16.

$$4 \times 9 = ?$$

Answer: ______________________________

17.

$$6 \times 6 = ?$$

Answer: ______________________________

18.

$$7 \times 9 = ?$$

Answer: ______________________________

19.

$$8 \times 5 = ?$$

Answer: ______________________________

20.

$$9 \times 8 = ?$$

Answer: ______________________________

Table Titan!

Why did the frog love multiplication?

Because it could always jump to the right answer!

Section 2: Reasoning - Commutative Law

Explore the relationship between multiplication facts.

21. If

$$7 \times 4 = 28$$

, what is

$$4 \times 7$$

? Explain why the answer is the same.

Answer: ____________________________________

Explanation: ____________________________________

____

22. Complete the pairs:

a)

$$6 \times 8 = 48$$

, so

$$8 \times 6 = ?$$

Answer: ____________________________

b)

$$9 \times 5 = 45$$

, so

$$5 \times 9 = ?$$

Answer: ____________________________

23. True or False:

$$7 \times 8$$

gives the same answer as

$$8 \times 7$$

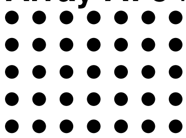
. Explain your thinking.

Answer: ________________________________

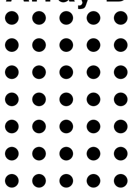
Explanation: ________________________________

24. Look at these two arrays:

Array A: 5 rows of 7 circles



Array B: 7 rows of 5 circles



Write the multiplication sentence for each array. What do you notice?

Array A: __________________________

Array B: __________________________

What I notice: __________________________

Commutative Champion!

Why did the multiplication facts switch places?

Because they knew the order didn’t matter!

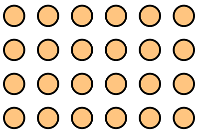
Section 3: Visual Modeling - Array Identification

Use arrays to understand multiplication facts.

25. Look at this

$$4 \times 6$$

array of circles:



Write two different multiplication sentences for this array.

Multiplication sentence 1: ______________________________

Multiplication sentence 2: ______________________________

26. Draw a

$$3 \times 7$$

array of stars below:

Write the multiplication sentence: ______________________________

27. Look at this array:

⋆ ⋆ ⋆ ⋆ ⋆
⋆ ⋆ ⋆ ⋆ ⋆
⋆ ⋆ ⋆ ⋆ ⋆
⋆ ⋆ ⋆ ⋆ ⋆
⋆ ⋆ ⋆ ⋆ ⋆
⋆ ⋆ ⋆ ⋆ ⋆

a) How many rows? ___________

b) How many columns? ___________

c) What is the total number of stars? ___________

d) Write the multiplication fact: ______________________

Array Artist!

Why did the array win an award?

Because it knew how to arrange things perfectly!

Fantastic work! You're a multiplication master!

SCAN FOR HELP

Answer Key

Worksheet 11: Fluency & Recall

Section 1: Fluency - Speed Drills

1. Answer: **42**
2. Answer: **72**
3. Answer: **20**
4. Answer: **56**
5. Answer: **54**
6. Answer: **24**
7. Answer: **45**
8. Answer: **42**
9. Answer: **32**
10. Answer: **81**
11. Answer: **48**
12. Answer: **28**
13. Answer: **27**
14. Answer: **56**
15. Answer: **30**
16. Answer: **36**
17. Answer: **36**
18. Answer: **63**
19. Answer: **40**
20. Answer: **72**

Section 2: Reasoning - Commutative Law

21. Answer: **28**

Explanation: **The answer is the same because multiplication can be done in any order (commutative property). 7 groups of 4 equals 4 groups of 7.**

22a. Answer: **48**

22b. Answer: **45**

23. Answer: **True**

Explanation: **Both equal 56. The order of factors doesn't change the product.**

24. Array A:

$$5 \times 7 = 35$$

Array B:

$$7 \times 5 = 35$$

What I notice: **Both arrays have the same total (35) even though the rows and columns are switched. This shows the commutative property.**

Section 3: Visual Modeling - Array Identification

25. Multiplication sentence 1:

$$4 \times 6 = 24$$

Multiplication sentence 2:

$$6 \times 4 = 24$$

26. Students should draw 3 rows of 7 stars or 7 rows of 3 stars

Multiplication sentence:

$$3 \times 7 = 21$$

or

$$7 \times 3 = 21$$

27a. Answer: **6 rows**
27b. Answer: **5 columns**
27c. Answer: **30 stars**
27d. Answer:

$$6 \times 5 = 30$$

or

$$5 \times 6 = 30$$

Merit Tutoring

Year 4 Mathematics

Times Tables Workshop

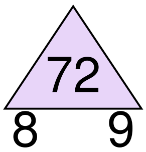
Worksheet 12: Related Facts & Patterns

Name: ________________________ **Date:** ________________

Section 1: Fluency - Fact Families

Explore the relationship between multiplication and division facts.

1. Write the four related facts (two multiplication, two division) for the numbers 8, 9, and 72.



Multiplication 1: ________________________________

Multiplication 2: ________________________________

Division 1: ________________________________

Division 2: ________________________________

2. Complete the fact family for 6, 7, and 42:

$$6 \times 7 = 42$$

$$7 \times 6 = \underline{\qquad\quad}$$

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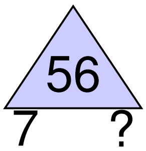
$$42 \div 6 = \_\_\_\_\_\_\_\_$$

$$42 \div 7 = \_\_\_\_\_\_\_\_$$

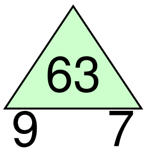
3. Look at this fact family triangle:



What is the missing number?

Answer: ________________________________

4. Write one multiplication and one division fact for this triangle:



Multiplication: ________________________________

Division: ________________________________

5. If

$$8 \times 6 = 48$$

, write the related division facts:

Division 1: ________________________________

Division 2: ________________________________

6. Complete this fact family:

$$5 \times 9 = 45$$

$$9 \times 5 = \_\_\_\_\_\_\_\_$$

$$45 \div 5 = \_\_\_\_\_\_\_\_$$

$$45 \div 9 = \_\_\_\_\_\_\_\_$$

7. Create your own fact family triangle using the numbers 4, 8, and 32:

8. If

$$7 \times 8 = 56$$

, what is

$$56 \div 7$$

?

Answer: ________________________________

Factor Fanatic!

Why did the fact family love reunions?

Because multiplication and division are related!

Section 2: Problem Solving - Real-world Scaling

Apply multiplication facts to solve practical problems.

9. A spider has 8 legs. How many legs do 9 spiders have altogether?

Answer: ________________________________

10. There are 7 days in a week. How many days are there in 6 weeks?

Answer: ________________________________

11. A box contains 8 chocolates. How many chocolates are in 7 boxes?

Answer: ________________________________

12. An octopus has 8 arms. How many arms do 4 octopuses have in total?

Answer: ________________________________

13. A teacher has 9 packets of pencils. Each packet has 6 pencils. How many pencils does the teacher have?

Answer: ________________________________

14. There are 5 fingers on one hand. How many fingers are on 9 hands?

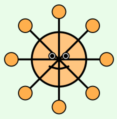
Answer: ________________________________

15. A car has 4 wheels. How many wheels do 8 cars have?

Answer: ______________________________

16. Emma buys 7 packs of stickers. Each pack has 9 stickers. How many stickers does Emma have altogether?

Answer: ______________________________



Multiplication Monster!

Why was the multiplication monster so popular?

Because it always knew how to 'times' things up!

SCAN FOR HELP

Section 3: Challenge - Doubling Strategies

Use doubling patterns to solve tricky multiplication facts.

Strategy Reminder: You can solve

$$8 \times 7$$

by doubling three times:

- Start with
$$7$$
- Double:
$$7 + 7 = 14$$
(this is
$$2 \times 7$$
)
- Double again:
$$14 + 14 = 28$$
(this is
$$4 \times 7$$
)
- Double once more:
$$28 + 28 = 56$$
(this is
$$8 \times 7$$
)

17. Use the double-double-double strategy to solve

$$8 \times 6$$

:

Start:

$$6$$

Double:

$$6 + 6 = \_\_\_\_\_\_\_\_$$

(this is

$$2 \times 6$$

)

Double again:

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

(this is

$$4 \times 6$$

)

Double once more:

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

(this is

$$8 \times 6$$

)

18. Use doubling to find

$$4 \times 9$$

:

Start with

$$9$$

Double:

$$9 + 9 = \_\_\_\_\_\_\_\_$$

(this is

$$2 \times 9$$

)

Double again:

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

(this is

$$4 \times 9$$

)

19. The pattern in the 9 times table: When you multiply 9 by any number, the digits in the answer add up to 9. Check if this works for

$$9 \times 7 = 63$$

:

Does

$$6 + 3 = 9$$

? ________________________

20. Look at the pattern in the 5 times table:

$$5 \times 2 = 10$$

$$5 \times 4 = 20$$

$$5 \times 6 = 30$$

$$5 \times 8 = 40$$

What pattern do you notice? ______________________

____

21. The 2s, 4s, and 8s tables are related by doubling. Complete:

$$2 \times 7 = 14$$

$$4 \times 7 = \_\_\_\_\_\_\_\_$$

(double 14)

$$8 \times 7 = \_\_\_\_\_\_\_\_$$

(double your answer above)

22. Find

$$6 \times 7$$

by using

$$5 \times 7$$

and adding one more group of 7:

$$5 \times 7 = \_\_\_\_\_\_\_\_$$

Add one more 7:

$$\_\_\_\_\_\_\_\_ + 7 = \_\_\_\_\_\_\_\_$$

So

$$6 \times 7 = \_\_\_\_\_\_\_\_$$

23. Challenge: Use any strategy to solve

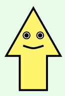
$$7 \times 9$$

. Explain your strategy.

Answer: ________________________________

Strategy used: ________________________________

____

 $\times 2 \ \times 2 \ \times 2$

Pattern Pioneer!

Why did the pattern love mathematics?

Because it always found connections and relationships!

Outstanding work! You're a times tables expert!

Answer Key

Worksheet 12: Related Facts & Patterns

Section 1: Fluency - Fact Families

1. Multiplication 1:

$$8 \times 9 = 72$$

Multiplication 2:

$$9 \times 8 = 72$$

Division 1:

$$72 \div 8 = 9$$

Division 2:

$$72 \div 9 = 8$$

2.

$$7 \times 6 = \mathbf{42}$$

$$42 \div 6 = \mathbf{7}$$

$$42 \div 7 = \mathbf{6}$$

3. Answer: **8** (because

$$7 \times 8 = 56$$

)

4. Multiplication:

$$9 \times 7 = 63$$

or

$$7 \times 9 = 63$$

Division:

$$63 \div 9 = 7$$

or

$$63 \div 7 = 9$$

5. Division 1:

$$48 \div 8 = 6$$

Division 2:

$$48 \div 6 = 8$$

6.

$$9 \times 5 = \mathbf{45}$$

$$45 \div 5 = \mathbf{9}$$

$$45 \div 9 = \mathbf{5}$$

7. Students should draw a triangle with 32 at the top and 4 and 8 at the bottom corners

8. Answer: **8**

Section 2: Problem Solving - Real-world Scaling

9. Answer: **72 legs**

Working:

$$8 \times 9 = 72$$

10. Answer: **42 days**

Working:

$$7 \times 6 = 42$$

11. Answer: **56 chocolates**

Working:

$$8 \times 7 = 56$$

12. Answer: **32 arms**

Working:

$$8 \times 4 = 32$$

13. Answer: **54 pencils**

Working:

$$9 \times 6 = 54$$

14. Answer: **45 fingers**

Working:

$$5 \times 9 = 45$$

15. Answer: **32 wheels**

Working:

$$4 \times 8 = 32$$

16. Answer: **63 stickers**

Working:

$$7 \times 9 = 63$$

Section 3: Challenge - Doubling Strategies

17. Double:

$$6 + 6 = \mathbf{12}$$

Double again:

$$12 + 12 = \mathbf{24}$$

Double once more:

$$24 + 24 = \mathbf{48}$$

18. Double:

$$9 + 9 = \mathbf{18}$$

Double again:

$$18 + 18 = \mathbf{36}$$

19. Does

$$6 + 3 = 9$$

? **Yes, the pattern works!**

20. Pattern: **All answers end in 0. When you multiply 5 by an even number, the answer is the even number multiplied by 10 then divided by 2. Or: multiples of 5 always end in 0 or 5.**

21.

$$4 \times 7 = \mathbf{28}$$

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

22.

$$5 \times 7 = \mathbf{35}$$

$$35 + 7 = \mathbf{42}$$

So

$$6 \times 7 = \mathbf{42}$$

23. Answer: **63**

Strategy: **Accept various strategies such as: (1) 10 × 7 = 70, then 70 - 7 = 63; (2) 5 × 7 = 35, double to get 70, subtract 7 to get 63; (3) 9 × 7 using the 9s pattern; (4) Direct recall**

Magnificent Mastery!

You've conquered times tables facts and patterns!

Keep practicing and you'll become even faster and more confident!

