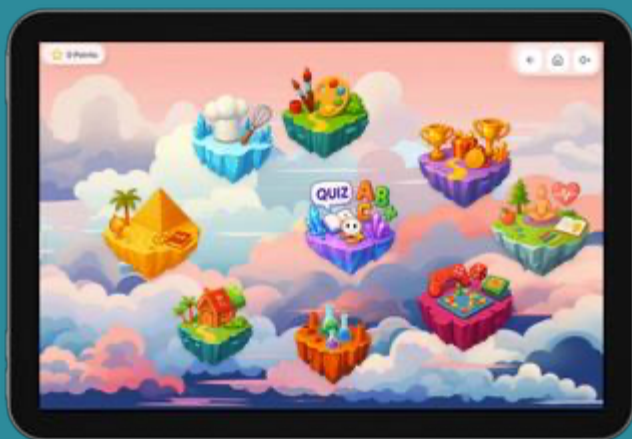




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9x Times Tables - Year 4

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Three Smart Ways to Multiply by 9

Choose the strategy that makes sense to you.

1. 10x Minus One

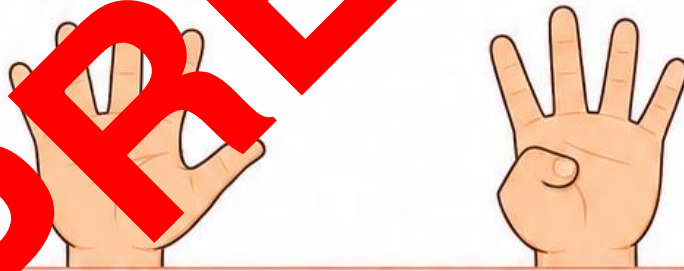
Multiply by 10, then subtract one group.



$$9 \times 7 = 70 - 7 = 63$$

2. Finger Method

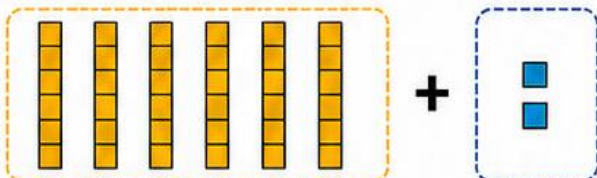
Hold up 10 fingers, fold the 6th finger for 9×6 .



$$5 \text{ fingers} \mid 4 \text{ fingers} = 54$$

3. Digits Add to 9

The tens digit is one less. Both digits add to 9.



$$9 \times 8 = 72 \quad 7 + 2 = 9$$



Check: Does your answer make sense?

Build the Nines Array Lab

Array Cards

Cut along the dotted lines. Keep each array with its matching facts.

1

1 row of 9



$$9 = 1 \times 9$$

2

2 rows of 9



$$9 + 9 = 2 \times 9$$

3

3 rows of 9



$$9 + 9 + 9 = 3 \times 9$$

4

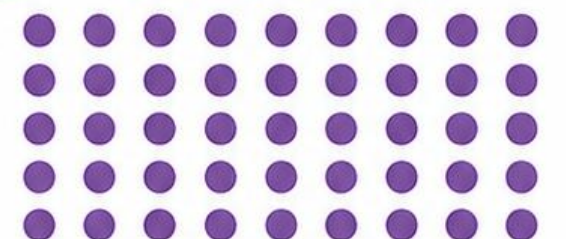
4 rows of 9



$$4 \times 9 = 36$$

5

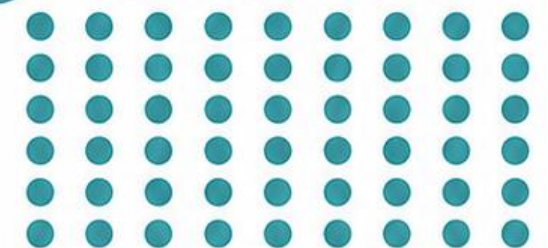
5 rows of 9



$$5 \times 9 = 45$$

6

6 rows of 9



$$6 \times 9 = 54$$



Build the Nines Array Lab

Sort and Record



Place the array cards in order. Complete one row for each card.

Card	Rows	Number in each row	Total	Multiplication fact
1				
2				
3				
4				
5				
6				

Challenge

Draw an array for 8×9 . Write its total.



Reflection

What changes each time you add another row?



Around the 9s Stadium

Fact Cards and Rules



Players: 2-4



You need: game board, one counter each, shuffled fact cards



How to play

1. Draw a card and solve it.
2. If correct, move 1 space.
3. Explain your strategy to move 1 bonus space.
4. Return the card to the bottom of the pile.
5. First to FINISH wins.

$$1 \times 9$$



$$2 \times 9$$



$$3 \times 9$$



$$4 \times 9$$



$$5 \times 9$$



$$6 \times 9$$



$$7 \times 9$$



$$8 \times 9$$



$$9 \times 9$$



$$10 \times 9$$



$$? \times 9 = 63$$



$$9 \times ? = 45$$



Snowball Smash 9x



Players: 2

You need:

one 10-sided die,
16 counters

How to play:

1. Roll the die. Treat 0 as 10.
2. Multiply the number by 9.
3. Cover that product on your side.
4. First to cover all 8 snowballs wins.



Player 1



9

18

27

36

45

54

63

72

81

90

Player 2



9

18

27

36

45

54

63

72

81

90

Around the 9s Stadium

★ Race through the multiples of 9 ★

START

FINISH



Draw a card.
Solve the fact.
Move 1 space for a
correct answer.

1

2

3

4

9

18

27

36

45

54

63

72

81

90

9

18

27

36

45

54

63

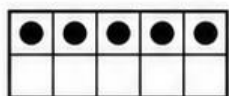
72

81

90

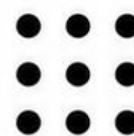
Name: _____

Date: _____



Strategy Switch

Guided Practice



1. Use 10x Minus One

Complete each step.

a. $9 \times 3 = 10 \times 3 - 3 = \underline{\quad}$

b. $9 \times 6 = 10 \times 6 - 6 = \underline{\quad}$

c. $9 \times 8 = 10 \times 8 - 8 = \underline{\quad}$

d. $9 \times 4 = 10 \times 4 - 4 = \underline{\quad}$

2. Use the Finger Pattern

Complete the tens digit, ones digit and product.

Fact	Tens digit	Ones digit	Product
9×2			
9×5			
9×7			
9×9			

3. Check the Digits

Complete the fact, then check that the digits in the product add to 9.

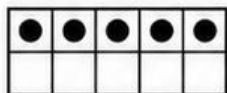
a. $9 \times 1 = \underline{\quad}$

b. $9 \times 4 = \underline{\quad}$

c. $9 \times 7 = \underline{\quad}$

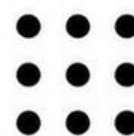
d. $9 \times 10 = \underline{\quad}$

Which strategy felt easiest today? Why?



Strategy Switch

Guided Practice



1. Use 10x Minus One

Complete each step.

a. $9 \times 3 = 10 \times 3 - 3 = \underline{27}$

b. $9 \times 6 = 10 \times 6 - 6 = \underline{54}$

c. $9 \times 8 = 10 \times 8 - 8 = \underline{72}$

d. $9 \times 4 = 10 \times 4 - 4 = \underline{36}$

2. Use the Finger Pattern

Complete the tens digit, ones digit and product.

Fact	Tens digit	Ones digit	Product
9×2	1	8	18
9×5	4	5	45
9×7	6	3	63
9×9	8	1	81

3. Check the Digits

Complete the fact, then check that the digits in the product add to 9.

a. $9 \times 1 = \underline{9}$

b. $9 \times 4 = \underline{36}$

c. $9 \times 7 = \underline{63}$

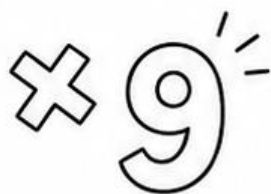
d. $9 \times 10 = \underline{90}$

Which strategy felt easiest today? Why?

Answers will vary. A clear reason should match the chosen strategy.

Name: _____

Date: _____



Strategy Switch

Independent Practice



1. Calculate

$9 \times 2 = \underline{\quad}$

$9 \times 4 = \underline{\quad}$

$9 \times 6 = \underline{\quad}$

$9 \times 8 = \underline{\quad}$

$3 \times 9 = \underline{\quad}$

$5 \times 9 = \underline{\quad}$

$7 \times 9 = \underline{\quad}$

$9 \times 9 = \underline{\quad}$

$\quad \times 1 = \underline{\quad}$

$10 \times 9 = \underline{\quad}$

$9 \times 5 = \underline{\quad}$

$8 \times 9 = \underline{\quad}$

2. Show Your Strategy

Choose two facts above. Show how you solved each one.

Fact 1

Fact 2

3. True or False?

a. $9 \times 7 = 63$

True / False

b. $9 \times 4 = 32$

True / False

c. $6 \times 9 = 54$

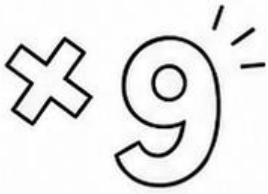
True / False

Correct the false statement: _____



ANSWERS: _____

Date: _____



Strategy Switch

Independent Practice



1. Calculate

$9 \times 2 = \underline{18}$

$9 \times 4 = \underline{36}$

$9 \times 6 = \underline{54}$

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

$3 \times 9 = \underline{27}$

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

$7 \times 9 = \underline{63}$

$9 \times 9 = \underline{81}$

$9 \times 1 = \underline{9}$

$10 \times 9 = \underline{90}$

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

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

2. Show Your Strategy

Choose two facts above. Show how you solved each one.

Fact 1

$9 \times 8 = 10 \times 8 - 8 = 72$

Fact 2

$7 \times 9 = 70 - 7 = 63$

3. True or False?

a. $9 \times 7 = 63$ **True** / False

b. $9 \times 4 = 32$ True / **False**

c. $6 \times 9 = 54$ **True** / False

Correct the false statement: $9 \times 4 = 36$



Date: _____

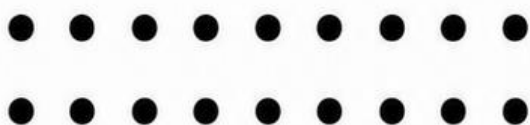
ANSWERS: _____

Date: _____

Arrays to Facts

Count the rows and the dots in each row. Write the repeated addition, multiplication fact and total.

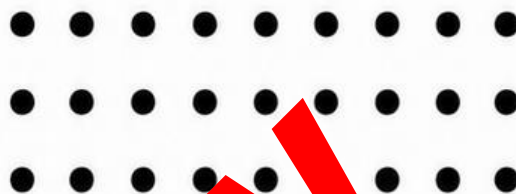
A



Repeated addition: $9 + 9$

Multiplication fact: $2 \times 9 = 18$ Total: 18

B



Repeated addition: $9 + 9 + 9$

Multiplication fact: $3 \times 9 = 27$ Total: 27

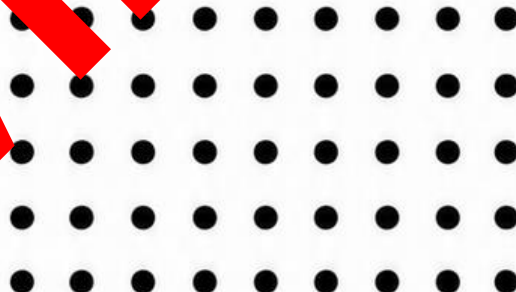
C



Repeated addition: $9 + 9 + 9 + 9$

Multiplication fact: $4 \times 9 = 36$ Total: 36

D

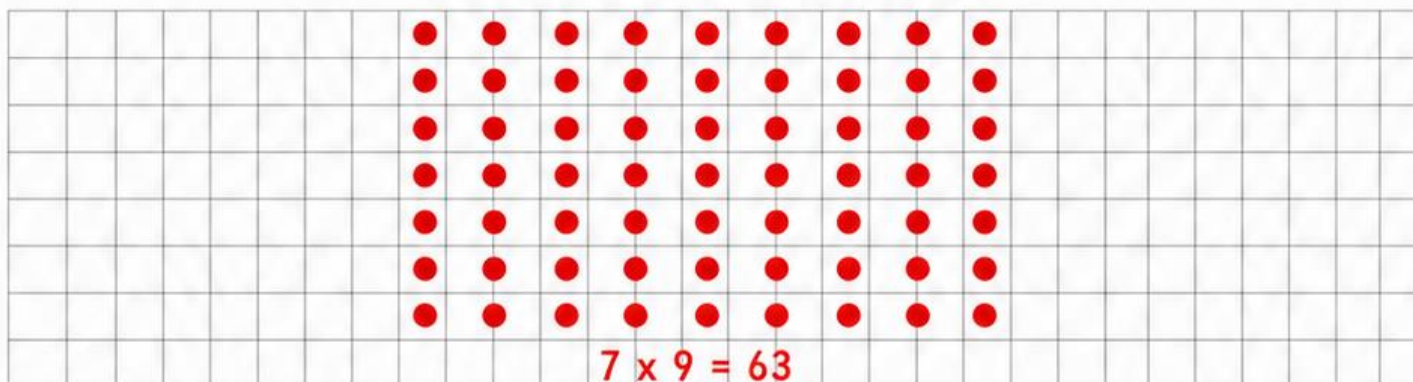


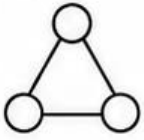
Repeated addition: $9 + 9 + 9 + 9 + 9$

Multiplication fact: $5 \times 9 = 45$ Total: 45

Challenge

Draw an array for 7×9 . Write its total.





Fact Families and Missing Factors



Name: _____

Date: _____

1. Complete Each Fact Family

Use the three numbers to write two multiplication facts and two division facts.

A. 2, 9, 18

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

B. 4, 9, 36

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

C. 7, 9, 63

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

D. 10, 9, 90

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

2. Find the Missing Number

a. $9 \times \underline{\quad} = 27$

b. $\underline{\quad} \times 9 = 45$

c. $9 \times \underline{\quad} = 18$

d. $\underline{\quad} \times 9 = 18$

e. $63 \div 9 = \underline{\quad}$

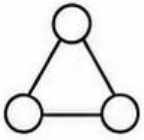
f. $90 \div \underline{\quad} = 10$

g. $36 \div 9 = \underline{\quad}$

h. $54 \div \underline{\quad} = 6$

3. Explain

How are $9 \times 6 = 54$ and $54 \div 9 = 6$ connected?



Fact Families and Missing Factors



Name: ANSWERS

Date: _____

1. Complete Each Fact Family

Use the three numbers to write two multiplication facts and two division facts.

A. 2, 9, 18

$$\underline{2} \times \underline{9} = \underline{18}$$

$$\underline{9} \times \underline{2} = \underline{18}$$

$$\underline{18} \div \underline{9} = \underline{2}$$

$$\underline{18} \div \underline{2} = \underline{9}$$

B. 4, 9, 36

$$\underline{4} \times \underline{9} = \underline{36}$$

$$\underline{9} \times \underline{4} = \underline{36}$$

$$\underline{36} \div \underline{9} = \underline{4}$$

$$\underline{36} \div \underline{4} = \underline{9}$$

C. 7, 9, 63

$$\underline{7} \times \underline{9} = \underline{63}$$

$$\underline{9} \times \underline{7} = \underline{63}$$

$$\underline{63} \div \underline{9} = \underline{7}$$

$$\underline{63} \div \underline{7} = \underline{9}$$

D. 10, 9, 90

$$\underline{10} \times \underline{9} = \underline{90}$$

$$\underline{9} \times \underline{10} = \underline{90}$$

$$\underline{90} \div \underline{9} = \underline{10}$$

$$\underline{90} \div \underline{10} = \underline{9}$$

2. Find the Missing Number

a. $9 \times \underline{3} = 27$

b. $\underline{5} \times 9 = 45$

c. $9 \times \underline{8} = 72$

d. $\underline{2} \times 9 = 18$

e. $63 \div 9 = \underline{7}$

f. $90 \div \underline{9} = 10$

g. $36 \div 9 = \underline{4}$

h. $54 \div \underline{9} = 6$

3. Explain

How are $9 \times 6 = 54$ and $54 \div 9 = 6$ connected?

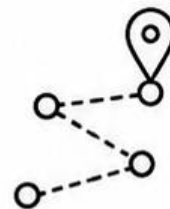
Multiplication and division are inverse operations. If $9 \times 6 = 54$, then $54 \div 9 = 6$.

Name: _____

Date: _____



9x Number Search



Start at 9. Move one square horizontally or vertically.
Find the path through the multiples of 9 in order
from 9 to 90. Draw one continuous line.

9	18	27	4	12	22
12	21	36	45	54	7
5	30	39	60	63	72
8	17	48	57	66	81
2	11	20	29	38	90
6	15	24	33	42	51

Write the multiples you found:

9, _____, _____, _____, _____, _____, _____, _____, _____, _____

How does the ones digit change each time? _____

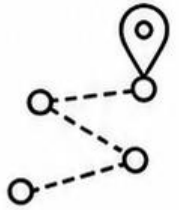
Name: _____

ANSWERS

Date: _____



9x Number Search



Start at 9. Move one square horizontally or vertically.
Find the path through the multiples of 9 in order
from 9 to 90. Draw one continuous line.

9	18	27	4	12	22
12	21	36	45	54	7
5	30	39	60	63	72
8	17	48	57	66	81
2	11	20	29	38	90
6	15	24	33	42	51

Write the multiples you found:

9, 18, 27, 36, 45, 54, 63, 72, 81, 90

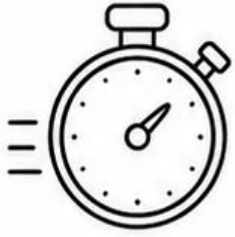
How does the ones digit change each time? It decreases by 1 each time.

Name: _____

Date: _____

Time: _____ minute(s)

Score: _____ / 40

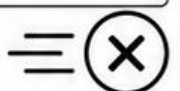


9x Times Tables Speed Check Before

$$9 \times ?$$
$$= \square$$

Solve as many facts as you can. Work carefully.

1. $9 \times 3 =$ _____	2. $6 \times 9 =$ _____	3. $9 \times 4 =$ _____	4. $9 \times 9 =$ _____
5. $0 \times 9 =$ _____	6. $10 \times 9 =$ _____	7. $9 \times 2 =$ _____	8. $7 \times 9 =$ _____
9. $9 \times 5 =$ _____	10. $8 \times 9 =$ _____	11. $9 \times 1 =$ _____	12. $2 \times 9 =$ _____
13. $9 \times 7 =$ _____	14. $1 \times 9 =$ _____	15. $10 \times 9 =$ _____	16. $8 \times 9 =$ _____
17. $9 \times 1 =$ _____	18. $3 \times 9 =$ _____	19. $5 \times 9 =$ _____	20. $9 \times 8 =$ _____
21. $9 \times 9 =$ _____	22. $4 \times 9 =$ _____	23. $9 \times 3 =$ _____	24. $6 \times 9 =$ _____
25. $9 \times 5 =$ _____	26. $0 \times 9 =$ _____	27. $9 \times 8 =$ _____	28. $2 \times 9 =$ _____
29. $7 \times 9 =$ _____	30. $9 \times 6 =$ _____	31. $1 \times 9 =$ _____	32. $9 \times 10 =$ _____
33. $8 \times 9 =$ _____	34. $9 \times 4 =$ _____	35. $3 \times 9 =$ _____	36. $9 \times 7 =$ _____
37. $6 \times 9 =$ _____	38. $9 \times 2 =$ _____	39. $5 \times 9 =$ _____	40. $9 \times 9 =$ _____

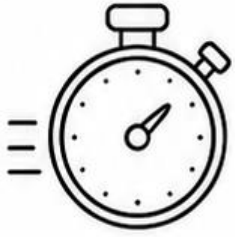


Name: **ANSWERS**

Date: _____

Time: _____ minute(s)

Score: _____ / 40

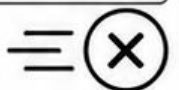


9x Times Tables Speed Check Before

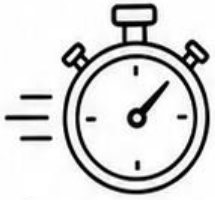
$$9 \times ? = \square$$

Solve as many facts as you can. Work carefully.

1. $9 \times 3 = \underline{27}$	2. $6 \times 9 = \underline{54}$	3. $9 \times 4 = \underline{36}$	$9 \times 9 = \underline{81}$
5. $0 \times 9 = \underline{0}$	6. $10 \times 9 = \underline{90}$	7. $9 \times 2 = \underline{18}$	8. $7 \times 9 = \underline{63}$
9. $9 \times 5 = \underline{45}$	10. $8 \times 9 = \underline{72}$	11. $9 \times 1 = \underline{9}$	12. $2 \times 9 = \underline{18}$
13. $9 \times 7 = \underline{63}$	14. $1 \times 9 = \underline{9}$	15. $10 \times 9 = \underline{90}$	16. $8 \times 9 = \underline{72}$
17. $9 \times 1 = \underline{9}$	18. $3 \times 9 = \underline{27}$	19. $5 \times 9 = \underline{45}$	20. $9 \times 8 = \underline{72}$
21. $9 \times 9 = \underline{81}$	22. $4 \times 9 = \underline{36}$	23. $9 \times 3 = \underline{27}$	24. $6 \times 9 = \underline{54}$
25. $9 \times 5 = \underline{45}$	26. $0 \times 9 = \underline{0}$	27. $9 \times 8 = \underline{72}$	28. $2 \times 9 = \underline{18}$
29. $7 \times 9 = \underline{63}$	30. $9 \times 6 = \underline{54}$	31. $1 \times 9 = \underline{9}$	32. $9 \times 10 = \underline{90}$
33. $8 \times 9 = \underline{72}$	34. $9 \times 4 = \underline{36}$	35. $3 \times 9 = \underline{27}$	36. $9 \times 7 = \underline{63}$
37. $6 \times 9 = \underline{54}$	38. $9 \times 2 = \underline{18}$	39. $5 \times 9 = \underline{45}$	40. $9 \times 9 = \underline{81}$



Name: _____ Date: _____ Time: _____ minute(s) Score: _____ / 40



9x Times Tables Speed Check



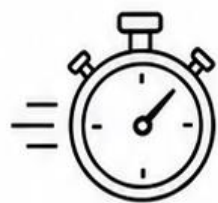
After

Solve as many facts as you can. Work carefully.

1. $2 \times 9 =$ ____	2. $9 \times 7 =$ ____	3. $4 \times 9 =$ ____	4. $9 \times 3 =$ ____
5. $9 \times 9 =$ ____	6. $6 \times 9 =$ ____	7. $10 \times 9 =$ ____	8. $9 \times 5 =$ ____
9. $1 \times 9 =$ ____	10. $8 \times 9 =$ ____	11. $9 \times 4 =$ ____	12. $0 \times 9 =$ ____
13. $9 \times 6 =$ ____	14. $3 \times 9 =$ ____	15. $7 \times 8 =$ ____	16. $5 \times 9 =$ ____
17. $7 \times 9 =$ ____	18. $9 \times 2 =$ ____	19. $9 \times 10 =$ ____	20. $4 \times 9 =$ ____
21. $9 \times 1 =$ ____	22. $6 \times 9 =$ ____	23. $9 \times 7 =$ ____	24. $2 \times 9 =$ ____
25. $8 \times 9 =$ ____	26. $9 \times 5 =$ ____	27. $3 \times 9 =$ ____	28. $9 \times 9 =$ ____
29. $0 \times 9 =$ ____	30. $9 \times 6 =$ ____	31. $5 \times 9 =$ ____	32. $9 \times 3 =$ ____
33. $10 \times 9 =$ ____	34. $9 \times 4 =$ ____	35. $7 \times 9 =$ ____	36. $1 \times 9 =$ ____
37. $9 \times 8 =$ ____	38. $4 \times 9 =$ ____	39. $9 \times 2 =$ ____	40. $6 \times 9 =$ ____



Name: **ANSWERS** Date: _____ Time: _____ minute(s) Score: _____ / 40



9x Times Tables Speed Check



After

Solve as many facts as you can. Work carefully.

1. $2 \times 9 =$ <u>18</u>	2. $9 \times 7 =$ <u>63</u>	3. $4 \times 9 =$ <u>36</u>	4. $9 \times 3 =$ <u>27</u>
5. $9 \times 9 =$ <u>81</u>	6. $6 \times 9 =$ <u>54</u>	7. $10 \times 9 =$ <u>90</u>	8. $9 \times 5 =$ <u>45</u>
9. $1 \times 9 =$ <u>9</u>	10. $8 \times 9 =$ <u>72</u>	11. $9 \times 4 =$ <u>36</u>	12. $0 \times 9 =$ <u>0</u>
13. $9 \times 6 =$ <u>54</u>	14. $3 \times 9 =$ <u>27</u>	15. $9 \times 8 =$ <u>72</u>	16. $5 \times 9 =$ <u>45</u>
17. $7 \times 9 =$ <u>63</u>	18. $9 \times 2 =$ <u>18</u>	19. $9 \times 10 =$ <u>90</u>	20. $4 \times 9 =$ <u>36</u>
21. $9 \times 1 =$ <u>9</u>	22. $6 \times 9 =$ <u>54</u>	23. $9 \times 7 =$ <u>63</u>	24. $2 \times 9 =$ <u>18</u>
25. $8 \times 9 =$ <u>72</u>	26. $9 \times 5 =$ <u>45</u>	27. $3 \times 9 =$ <u>27</u>	28. $9 \times 9 =$ <u>81</u>
29. $0 \times 9 =$ <u>0</u>	30. $9 \times 6 =$ <u>54</u>	31. $5 \times 9 =$ <u>45</u>	32. $9 \times 3 =$ <u>27</u>
33. $10 \times 9 =$ <u>90</u>	34. $9 \times 4 =$ <u>36</u>	35. $7 \times 9 =$ <u>63</u>	36. $1 \times 9 =$ <u>9</u>
37. $9 \times 8 =$ <u>72</u>	38. $4 \times 9 =$ <u>36</u>	39. $9 \times 2 =$ <u>18</u>	40. $6 \times 9 =$ <u>54</u>



Nine Facts Challenge

Assessment - Page 1: Fluency and Reasoning

Name: _____

Date: _____

1

Quick Facts



a. $9 \times 3 = \underline{\quad}$

e. $9 \times 5 = \underline{\quad}$

b. $6 \times 9 = \underline{\quad}$

f. $9 \times 9 = \underline{\quad}$

c. $9 \times 8 = \underline{\quad}$

g. $7 \times 9 = \underline{\quad}$

d. $4 \times 9 = \underline{\quad}$

h. $10 \times 9 = \underline{\quad}$

2

Find the Missing Number



a. $9 \times \underline{\quad} = 54$

c. $45 \div \underline{\quad} = \underline{\quad}$

b. $\underline{\quad} \times 9 = 72$

d. $63 \div \underline{\quad} = 7$

3

Explain a Strategy



Show how you can use 9×8 to solve 9×8 .

4

Spot the Error



Liam says $9 \times 6 = 45$. Explain his error and write the correct fact.

Check your work before you finish.

Nine Facts Challenge

Assessment - Page 1: Fluency and Reasoning

Name: ANSWERS

Date: _____

1

Quick Facts



a. $9 \times 3 = \underline{27}$

e. $9 \times 5 = \underline{45}$

b. $6 \times 9 = \underline{54}$

f. $9 \times 9 = \underline{81}$

c. $9 \times 8 = \underline{72}$

g. $7 \times 9 = \underline{63}$

d. $4 \times 9 = \underline{36}$

h. $10 \times 9 = \underline{90}$

2

Find the Missing Number



a. $9 \times \underline{6} = 54$

c. $45 \div \underline{9} = 5$

b. $\underline{8} \times 9 = 72$

d. $63 \div \underline{9} = 7$

3

Explain a Strategy



Show how you can use 10×8 to solve 9×8 .

$10 \times 8 = 80$. Subtract one group of 8: $80 - 8 = 72$.
Therefore, $9 \times 8 = 72$.

4

Spot the Error



Liam says $9 \times 6 = 45$. Explain his error and write the correct fact.

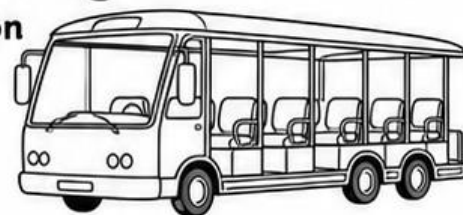
Liam used the 5x fact. Six groups of 9 total 54, so $9 \times 6 = 54$.

Name: _____

Date: _____

Nine Facts Challenge

Assessment - Page 2: Application



1. Excursion Seats

A wildlife park tram has 9 seats in each row. Year 4 books 7 full rows.

a. How many seats are booked? Show your calculation.

b. Five students are absent. How many seats are occupied now?

_____ seats

2. Represent the Fact

Draw an array for 4×9 . Label the rows, columns and total.

Rows

Columns

Total

Total: _____

3. Compare

Without calculating both facts from the beginning, explain how 9×8 is related to 9×7 .



4. Challenge

Write a short word problem that is solved by 9×6 . Then solve it.

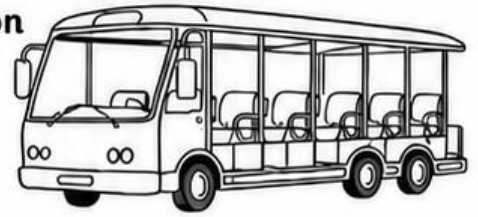


Name: **ANSWERS**

Date: _____

Nine Facts Challenge

Assessment - Page 2: Application



1. Excursion Seats

A wildlife park tram has 9 seats in each row. Year 4 books 7 full rows.

a. How many seats are booked? Show your calculation.

$$7 \times 9 = 63 \text{ seats}$$

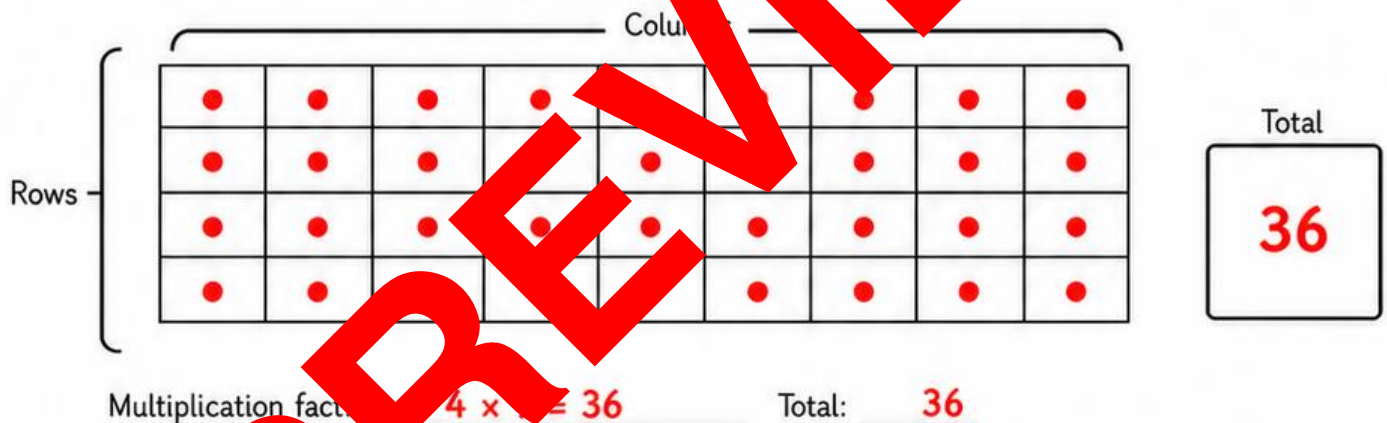
b. Five students are absent. How many seats are occupied now?

$$63 - 5 = 58; \text{ answer } 58$$

Answer: **58** seats

2. Represent the Fact

Draw an array for 4×9 . Label the rows, columns and total.



3. Compare

Without calculating from the beginning, explain how 9×8 is related to 9×7 .

9×8 is one group of 9 more than 9×7 . Since $9 \times 7 = 63$, add 9 to get 72.

4. Challenge

Write a short word problem that is solved by 9×6 . Then solve it.

Six packs hold 9 pencils each. How many pencils are there? $9 \times 6 = 54$ pencils.

9x Times Tables Rubric

Student: _____

Date: _____

Criteria	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCELLENCE
Recall of 9 times table	Recalls few facts without support.	Recalls some facts with prompts.	Accurately recalls most facts.	Accurately and efficiently recalls all facts.	Uses efficient recall in unfamiliar problems.
Strategy use	Needs support to choose a strategy.	Uses one strategy with guidance.	Uses a suitable strategy independently.	Chooses flexibly from several strategies.	Compares strategies and justifies the best choice.
Representations	Has difficulty matching arrays and facts.	Matches simple arrays and facts with help.	Connects arrays, facts and division.	Creates accurate representations independently.	Uses representations to solve general problems.
Reasoning and application	Needs support to explain thinking.	Gives a partial explanation.	Explains thinking and solves familiar problems.	Explains clearly and solves multi-step problems.	Generalises patterns and communicates problem solving reasoning.

Overall feedback:

Next step:

9x Times Tables



Learning Goal

We are learning to recognise patterns, explain strategies and recall the 9x facts.

Success looks like:

- I can model 9x with equal groups and arrays.
- I can choose an efficient strategy.
- I can explain why my answer makes sense.



What Does Multiply by 4 Mean?

9×4 means 4 equal groups of 9.

$$9 + 9 + 9 + 9 = 36$$

An array can show 4 rows of 9. Turn the array and the total stays 36:

$$9 \times 4 = 4 \times 9 = 36$$



Notice the Pattern

9, 18, 27, 36, 45, 54, 63, 72, 81, 90

Each fact adds one more group of 9.

- The tens digit increases by 1.
- The ones digit decreases by 1.
- The two digits of the product add to 9, until 90.



Strategy 1: $10\times$ Minus One Group

To find $9 \times n$, first find $10 \times n$, then subtract one group of n .

Example: 9×7

$$10 \times 7 = 70$$

$$70 - 7 = 63$$

$$\text{So, } 9 \times 7 = 63$$



Guided Practice

Use $10\times$ minus one group.

A. $9 \times 4 = 10 \times 4 - 4 = \underline{\hspace{2cm}}$

B. $9 \times 7 = 10 \times 7 - 7 = \underline{\hspace{2cm}}$

C. $9 \times 9 = 10 \times 9 - 9 = \underline{\hspace{2cm}}$

Explain one of the problems to a partner.



Check Your Thinking

Answers

A. $40 - 4 = 36$

B. $70 - 7 = 63$

C. $90 - 9 = 81$

In every case, subtracting one group changes 10 groups into 9 groups.



Strategy 2: The Finger Method

Hold up 10 fingers.

1. Count from the left to the multiplier.
2. Fold that finger down.
3. Fingers left of the fold show tens.
4. Fingers right of fold show ones.

Example: fold finger 6 $\rightarrow$ 4 $\rightarrow$ 54. So, $9 \times 6 = 54$.



Guided Practice

Use the finger method.

- A. Fold finger 3. What product is shown? _____
- B. Fold finger 6. What product is shown? _____
- C. Fold finger 8. What product is shown? _____

Say the fact and the product aloud.



Check Your Thinking

Answers

A. $2 \mid 7 \rightarrow 27$, so $9 \times 3 = 27$

B. $5 \mid 4 \rightarrow 54$, so $9 \times 6 =$

C. $7 \mid 2 \rightarrow 72$, so $9 \times 8 = 72$



Strategy 3: Make the Digits total 9

For $9 \times n$, the tens digit is one less than n . Choose the ones digit so the two digits total 9.

Example: 9×7

One less than 7:

$$6 + 3 = 9.$$

So $9 \times 7 = 63$.



Guided Practice

Write one less than the multiplier as the tens digit. Complete the product so its digits total 9.

A. $9 \times 2 = \underline{\quad}$

B. $9 \times 5 = \underline{\quad}$

C. $9 \times 7 = \underline{\quad}$

D. $9 \times \underline{\quad} = \underline{\quad}$



Check Your Thinking

Answers

A. $9 \times 2 = 18$

B. $9 \times 5 = 45$

C. $9 \times 7 = 63$

D. $9 \times 10 =$



Arrays Connect the Facts

An array shows equal rows and columns.

4 rows of 9 = 36

9 rows of 4 = 36

The array can turn around without changing the total.

$4 \times 9 = 9 \times 4$

It also shows $36 \div 9 = 4$ and $36 \div 4 = 9$.



Choose an Efficient Strategy

Different facts can invite different strategies

- 9×8 : use $10 \times 8 - 8$.
- 9×3 : fold finger 3 to solve.
- 9×7 : use tens doubles: $6 + 6 = 12$, so 63

Any strategy is valid when you can explain it.



Exit Check

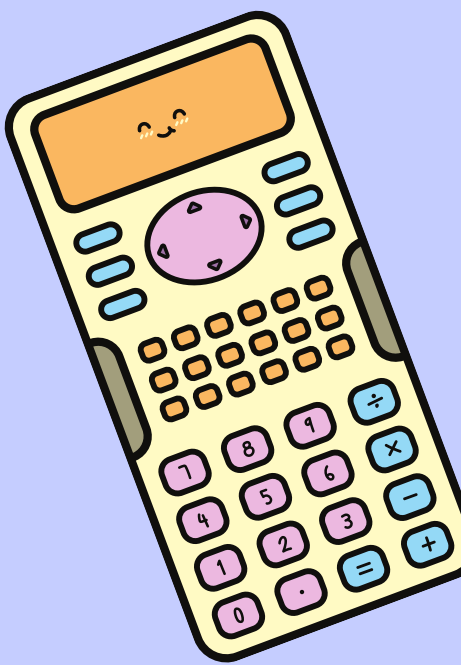
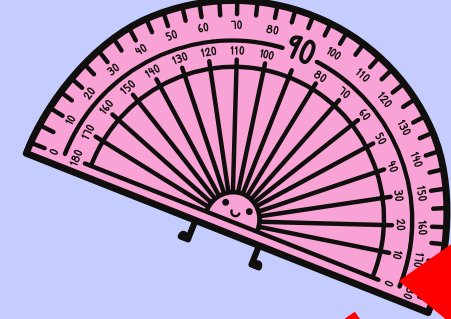
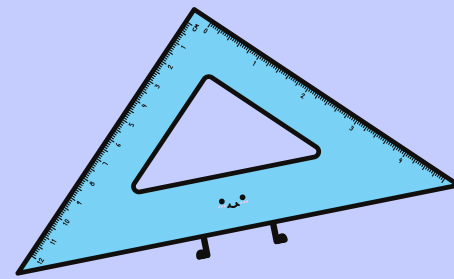
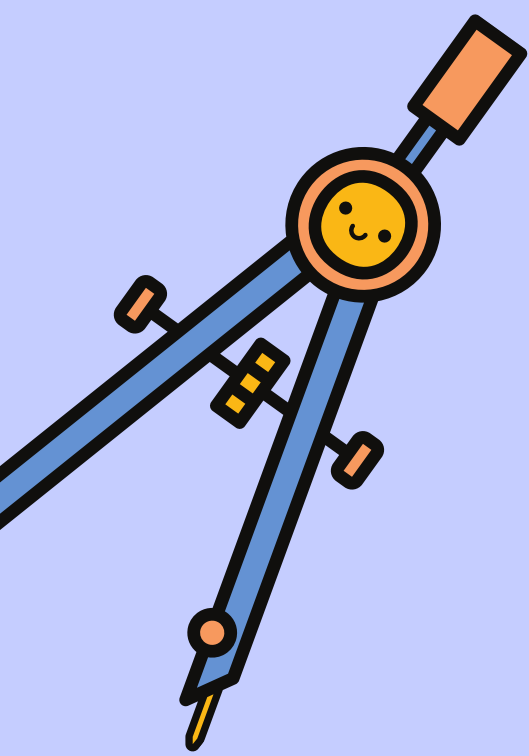
1. Solve 9×6 .

2. Fill the missing factor: $9 \times \underline{\quad} = 72$.

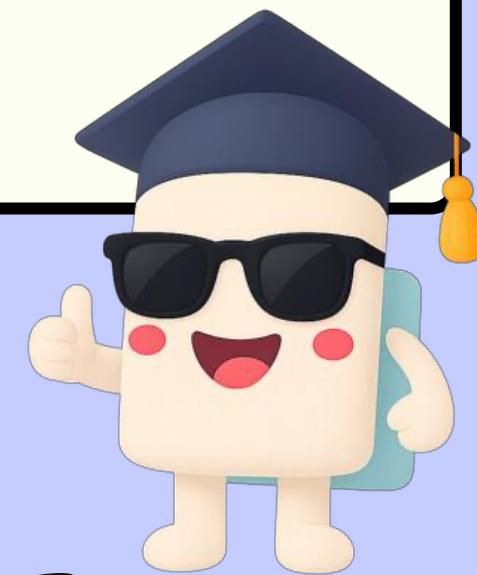
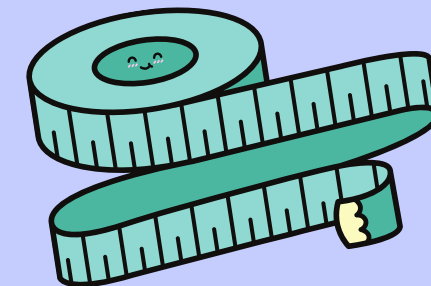
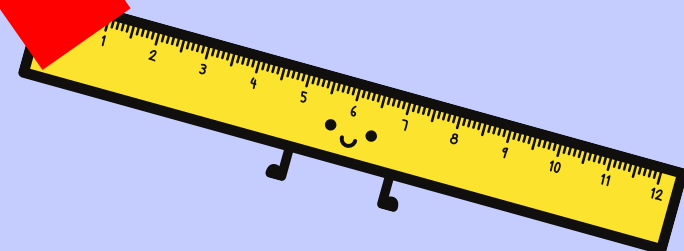
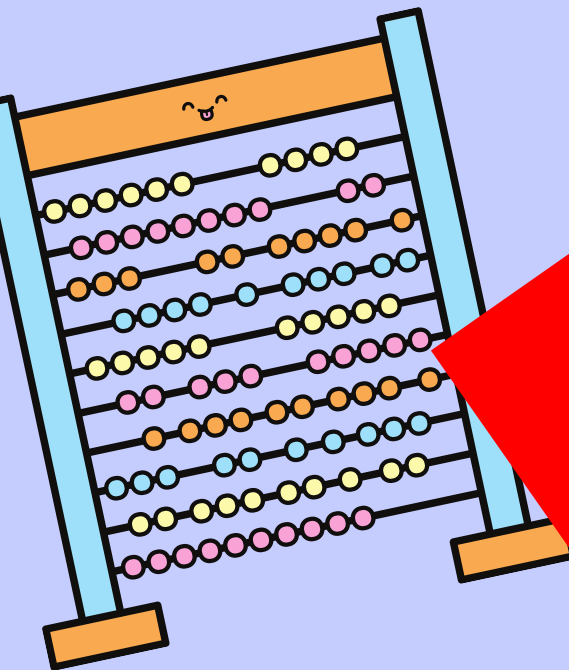
3. Explain why 9×5 is 5 less than 10×5 .

Be ready to name the strategy you used.





Well Done!



9x Times Tables Quiz



Question 1: Multiple Choice

What is 9×4 ?

A. 27

B. 36

C. 45

D. 5



Answer 1

B. 36

$10 \times 4 = 40$, then subtract one group of 4: $40 - 4 = 36$.



Question 2: True or false?

$$9 \times 7 = 64$$

True or false? Explain how you know.



Answer 2

False.

$$9 \times 7 = 63.$$

Using $10 \times$ minus one 7 . $70 - 7 = 63$.



Question 3: Short Answer

What is $90 \div 9$?

Write the related multiplication fact.



Answer 3

$$90 \div 9 = 10$$

The related multiplication fact is $9 \times 10 = 90$.



Question 4: Multiple Choice

$$9 \times \underline{\quad} = 63$$

A. 5

B. 6

C. 7

D. 8



Answer 4

C. 7

$9 \times 7 = 63$, so the missing factor is 7.



Question 5: True or false?

For any whole number n , $10 \times n - n$ gives $9 \times n$.

True or false?



Answer 5

True.

Ten groups of n minus one group of n gives nine groups of n .



Question 6: Short Answer

Use the make-the-digits-total-9 strategy to solve.

Show the two product digits.



Answer 6

$$9 \times 8 = 72$$

One less than 8 is 7. The ones digit is 2 because $7 + 2 = 9$.



Question 7: Multiple Choice

An array has 6 rows of 9 dots. How many dots are there?

- A. 45
- B. 54
- C. 63
- D. 72



Answer 7

B. 54

Six equal groups of 9 are $6 \times 9 = 54$



Question 8: Short Answer

Complete the sequence.

27, 36, ____, 54

Explain the step between the numbers.



Answer 8

45

Each term is 9 more than the previous term.



Question 9: True or false?

$$9 \times 3 = 3 \times 9$$

True or false? Name the property shown.



Answer 9

True.

Both facts equal 27. Turning the answer around shows the commutative property.



Question 10: Multiple choice

There are 8 packs with 9 pencils in each pack. How many pencils are there?

- A. 63
- B. 70
- C. 72
- D. 8

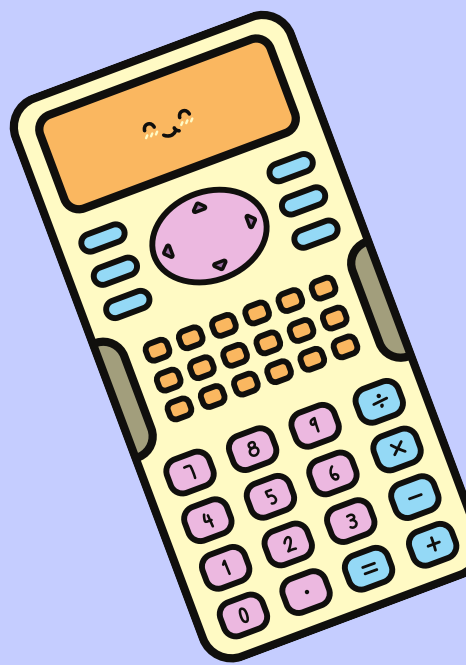
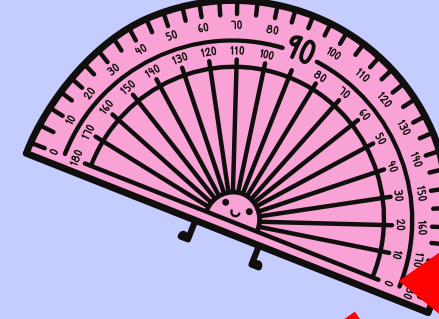
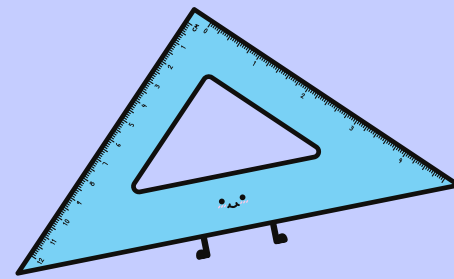
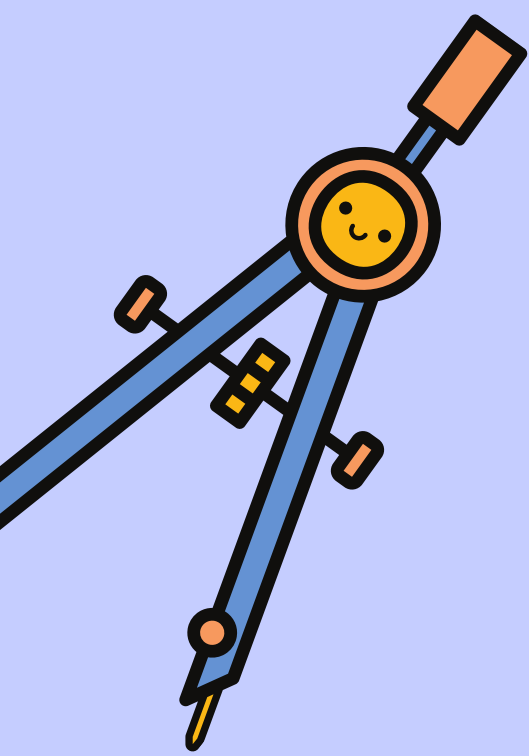


Answer 10

C. 72

$8 \times 9 = 72$ pencils.





Well Done!

