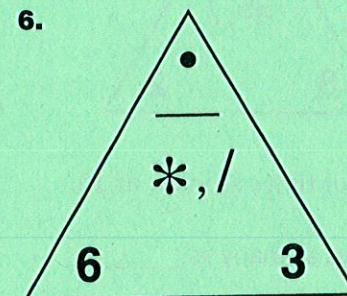
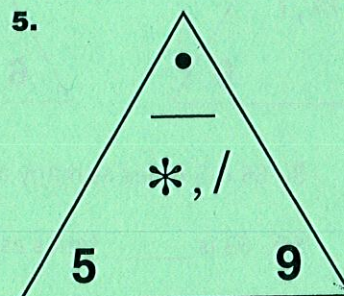
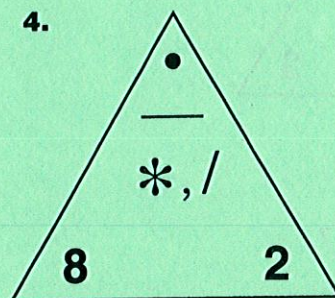
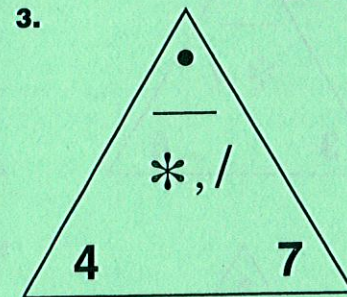
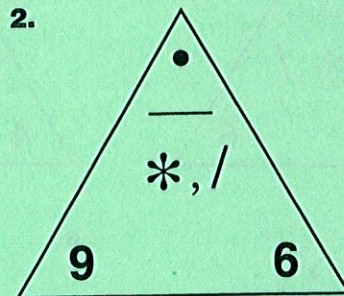
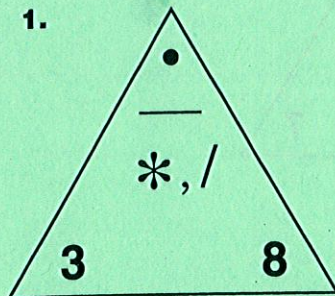



STUDY LINK
3·3

Fact Triangles



Complete these Multiplication/Division Fact Triangles.



Complete the statements.

7. _____ is 4 times as many as 10. 8. _____ is 5 times as many as 5.
 9. _____ is 6 times as many as 8. 10. 63 is _____ times as many as 7.
 11. _____ is 8 times as many as 8. 12. 42 is 7 times as many as _____.

Practice

13. Name 4 multiples of 7. _____, _____, _____, _____
 14. List all the factors of 18. _____
 15. List the factors of 18 that are prime. _____
 16. List all the factor pairs of 20.
 _____ and _____, _____ and _____, _____ and _____

STUDY LINK
3•4

Mystery Numbers



Find the mystery numbers.

- I am thinking of a mystery number. If I multiply it by 4, the answer is 24. What is the number? _____
- I am thinking of another number. If I multiply it by 3, the answer is 24. What is the number? _____
- I am thinking of a mystery number. 24 is 4 times as many as this number. What is the number? _____
- I am thinking of a mystery number. This number is 7 times as many as 3. What is the number? _____
- Write your own mystery number problem.

Fill in the missing numbers.

- | | |
|------------------------|--------------------|
| 6. $4 * 5 =$ _____ | _____ $* 4 = 20$ |
| 7. _____ $= 6 * 3$ | $18 =$ _____ $* 3$ |
| 8. $7 * 7 =$ _____ | _____ $* 7 = 49$ |
| 9. _____ $* 2 = 18$ | $18 =$ _____ $* 9$ |
| 10. $35 =$ _____ $* 5$ | _____ $* 7 = 35$ |
| 11. $28 =$ _____ $* 4$ | _____ $* 7 = 28$ |

Practice

- Name 4 multiples of 5. _____, _____, _____, _____
- List all the factors of 24. _____
- List the factors of 24 that are composite. _____

STUDY LINK
3•5

Missing Numbers



Complete each fact by filling in the missing numbers.
 Use the Multiplication/Division Facts Table to help you.

1. $30 \div 6 = \underline{\hspace{2cm}}$
2. $21 \div \underline{\hspace{2cm}} = 3$
3. $9 = \underline{\hspace{2cm}} \div 8$
4. $100 \div \underline{\hspace{2cm}} = 10$
5. $\underline{\hspace{2cm}} \div 4 = 8$
6. $25 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
7. $\underline{\hspace{2cm}} = 42 \div \underline{\hspace{2cm}}$
8. $8 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
9. $4 = \underline{\hspace{2cm}} \div \underline{\hspace{2cm}}$
10. $\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = 1$
11. $\underline{\hspace{2cm}} \div 2 = \underline{\hspace{2cm}}$
12. $10 * \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

Try This

13. $5 * \underline{\hspace{2cm}} * \underline{\hspace{2cm}} = 30$
14. $54 = \underline{\hspace{2cm}} * \underline{\hspace{2cm}} * \underline{\hspace{2cm}}$

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

Practice

15. $\underline{\hspace{2cm}} = 989 + 657$
16. $314 + 4,719 = \underline{\hspace{2cm}}$
17. $887 - 598 = \underline{\hspace{2cm}}$
18. $\underline{\hspace{2cm}} = 2,004 - 716$

STUDY LINK
3•6

Number Stories about Egypt



1. The Nile in Africa is about 4,160 miles long. The Huang River in Asia is about 800 miles shorter than the Nile. How long is the Huang River?

Number model: _____ About _____ miles

2. The Suez Canal links the Mediterranean and Red Seas. It is 103 miles long and was opened in 1869. For how many years has the Suez Canal been open?

Number model: _____ years

3. Egypt has about 3,079 miles of railroad. The United States has about 132,000 miles of railroad. How many fewer miles of railroad does Egypt have than the United States?

Number model: _____ About _____ miles

4. The population of Cairo, the capital of Egypt, is about 10,834,000. The population of Washington, D.C., is about 563,000.

a. True or false? About $10\frac{1}{2}$ million more people live in Cairo than in Washington, D.C. _____

b. Explain how you solved the problem.

Try This

5. The area of Egypt is about 386,700 square miles. The area of Wyoming is about 97,818 square miles.

a. Egypt is about how many times as large as Wyoming? _____

b. Explain how you solved the problem.

Practice

6. List all the factors of 12. _____

7. Name 4 multiples of 8. _____, _____, _____, _____

Use a separate sheet of paper if you need more work space for any of these problems. **No Calculators.**

1. The Nile in Africa is about 4,160 miles long. The Huang River in Asia is about 800 miles shorter than the Nile. How long is the Huang River?

Number model: _____ About _____ miles

2. The Suez Canal links the Mediterranean and Red Seas. It is 103 miles long and was opened in 1869. For how many years has the Suez Canal been open?

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3. Egypt has about 3,079 miles of railroad. The United States has about 132,000 miles of railroad. How many fewer miles of railroad does Egypt have than the United States?

Number model: _____ About _____ miles

4. The population of Cairo, the capital of Egypt, is about 10,834,000. The population of Washington, D.C., is about 563,000.

a. True or false? About $10\frac{1}{2}$ million more people live in Cairo than in Washington, D.C. _____

b. Explain how you solved the problem.

c. About how many times larger than Washington's population is Cairo's Population?

5. The area of Egypt is about 386,700 square miles. The area of Wyoming is about 97,818 square miles.

a. Wyoming is about how many times as large as Egypt? _____

b. Explain how you solved the problem.

6. List all the factors of 24 that are also factors of 60. _____

7. Name four multiples of 8 that are greater than 100. _____

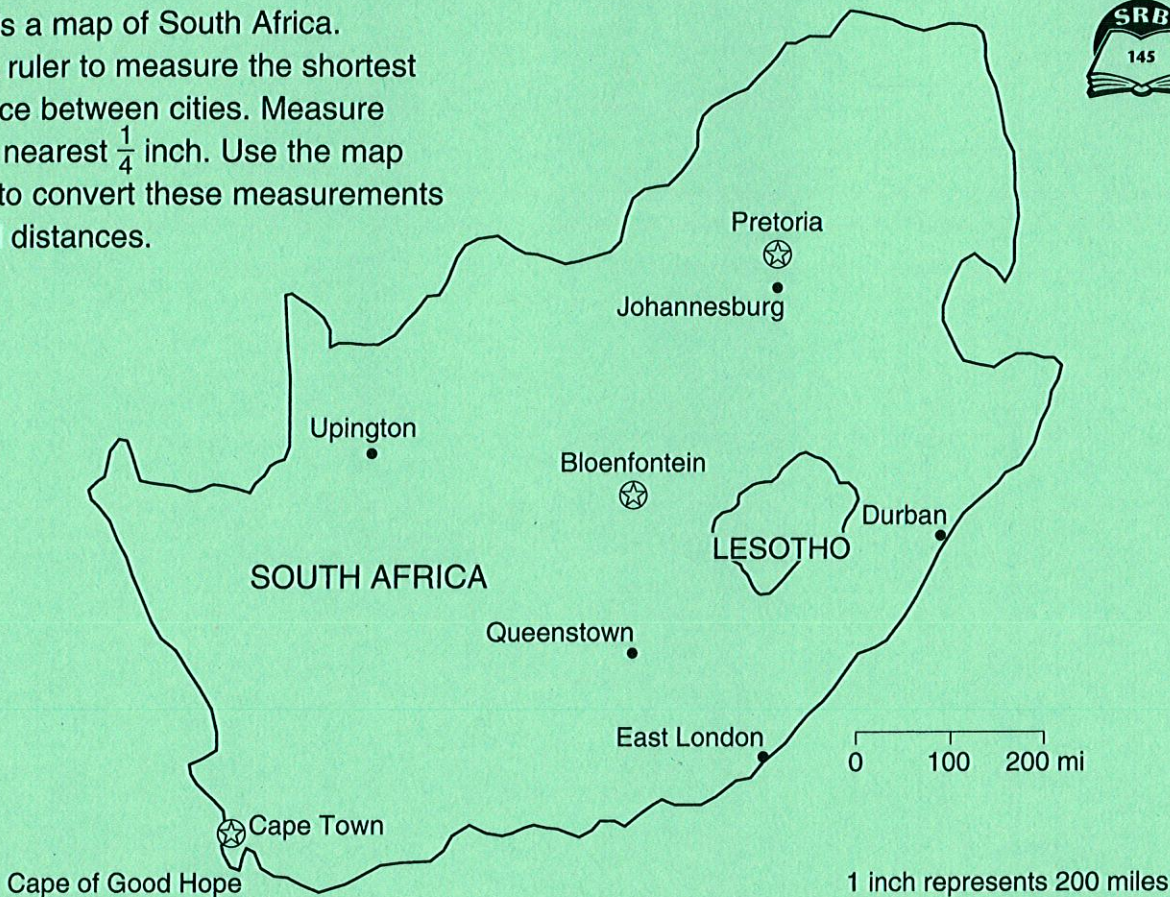
STUDY LINK
3•7

Map Scale



Here is a map of South Africa.

Use a ruler to measure the shortest distance between cities. Measure to the nearest $\frac{1}{4}$ inch. Use the map scale to convert these measurements to real distances.



	Cities	Measurement on Map (inches)	Real Distance (miles)
1.	Cape Town and Durban		
2.	Durban and Pretoria		
3.	Cape Town and Johannesburg		
4.	Johannesburg and Queenstown		
5.	East London and Upington		
6.	_____ and _____		

Practice

7. _____ = $767 + 254$

8. $193 + 6,978 =$ _____

9. $562 - 388 =$ _____

10. _____ = $4,273 - 678$

SL 4-3-8 Option B Number Stories: Add/Subtract Name _____

Use a separate sheet of paper if you need more work space for any of these problems. No Calculators.

1. Rhode Island, the smallest state in the United States, has an area of 1,545 square miles. The area of the second largest state, Delaware, is 2,489 square miles.
 - a. What is the combined area of these two states? Answer _____ Square Miles
Number Model with Unknown _____
Number Model with Answer: _____
 - b. Wyoming, with an area of 97,818 square miles is how much larger than these Rhode Island and Delaware combined?
Answer _____ Square Miles
Number Model with Unknown _____
Number Model with Answer: _____
2. A polar bear can weigh as much as 700 kilograms. An American black bear can weigh as much as 227 kilograms. About how many black bears will weigh the same as one polar bear? Explain how you found your answer.
3. The Pacific leatherback turtle's maximum weight is about 1,552 pounds. The Atlantic leatherneck Turtle's maximum weight is about 1,018 pounds. Three Atlantic leatherneck turtle's will weigh about the same as how many Pacific leatherneck turtle's? Explain how you got your answer.
4. According to the National Historic Register of Historic Places, New York City has the largest number of historic places in the United States with 624 sites. Philadelphia is second with 470 historic sites, and Washington D.C. is third with 336 historic sites. How many more historic sites are there in Washington and Philadelphia combined than an in New York City alone.
5. The numbers 81, 27, and 45 are multiples of what two numbers? Explain why this makes sense.
6. List five multiples of 6 that are also multiples of 4.
 - a. All of these numbers are also multiples of what number?
 - b. Explain how the answer in part a is related to the numbers 4 and 6.

STUDY LINK
3•8

Addition and Subtraction Number Stories



1. Rhode Island, the smallest state in the United States, has an area of 1,545 square miles. The area of the second-smallest state, Delaware, is 2,489 square miles. What is the combined area of these two states?

Answer: _____ square miles _____
 (number model with unknown)

 (number model with answer)

2. A polar bear can weigh as much as 700 kilograms. An American black bear can weigh as much as 227 kilograms. How much more can a polar bear weigh than an American black bear?

Answer: _____ kilograms more _____
 (number model with unknown)

 (number model with answer)

3. The Pacific leatherback turtle's maximum weight is about 1,552 pounds. The Atlantic leatherback turtle's maximum weight is about 1,018 pounds. What is the difference between the turtles' maximum weights?

Answer: _____ pounds _____
 (number model with unknown)

 (number model with answer)

4. According to the National Register of Historic Places, New York City has the largest number of historic places in the United States with 624 sites. Philadelphia is second with 470 sites, and Washington, D.C., is third with 336 sites. How many historic sites are there in these three cities?

Answer: _____ historic sites _____
 (number model with unknown)

 (number model with answer)

Practice

5. The numbers 81, 27, and 45 are multiples of _____.

6. List the first ten multiples of 6.

_____, _____, _____, _____, _____, _____, _____, _____, _____, _____

SL 4-3-9 Option B**Number Sentences**

Name _____

Use a separate sheet of paper if you need more work space for any of these problems. **No Calculators.**

Next to each number sentence, write T if it is true, and F if it is false, or ? if you can't tell. On Problems 6 and 7 explain why you made your choice.

1. $20 - 12 = 8 + 3$ _____

2. $7 = 14 \cdot 2$ _____

3. $497 + 500$ _____

4. $16/4 = 4$ _____

5. $485 - 15 + 10 > 235 + 235 + 15$ _____

6. $10/2 + 6 - 1 = 24/4 - 1 + 5$ _____

7. $33 - 21 + 4 < 48/4 + 3$ _____

Explain #6:

Explain #7:

8. Write two true number sentences. _____

9. Write two false number sentences. _____

10. Suzie wants to know how to tell when a mathematical statement is a number sentence and when a mathematical statement is not a number sentence. Describe to her how to tell the difference.

11. Brian says he has written a number sentence with more than one equal sign. Do you think this is possible? Explain why or why not.

Practice:

12. 24, _____, 48, _____, 72, _____

Rule: _____

13. 2, 4, _____, 10, _____, 26, _____

Rule: _____

STUDY LINK
3•9

Number Sentences



Next to each number sentence, write T if it is true, F if it is false, or ? if you can't tell.

1. $20 - 12 = 8 * 3$ _____

2. $7 = 14 * 2$ _____

3. $497 < 500$ _____

4. $16 / 4 = 4$ _____

5. $15 + 10 = 5$ _____

6. $24 > 11 + 11$ _____

7. $100 - 5 = 95$ _____

8. $33 - 4$ _____

9. Write two true number sentences. _____

10. Write two false number sentences. _____

11. a. Explain why $7 * 8$ is not a number sentence.

b. How could you change $7 * 8$ to make a true number sentence?

c. How could you change $7 * 8$ to make a false number sentence?

Practice

12. 24, _____, 48, _____, 72, _____ Rule: _____

13. _____, 108, 162, _____, 270, _____ Rule: _____

SL 4-3-10 Option B

Parentheses

Name _____

Use a separate sheet of paper if you need more work space for any of these problems. **No Calculators.**

Write the missing number to make each number sentence true.



- 1. $(45 \div 5) * 3 = \underline{\hspace{2cm}}$
- 2. $9 + (4 * 6) = \underline{\hspace{2cm}} + 10$
- 3. $(20 \div 4) \div 5 = 12 + \underline{\hspace{2cm}} - 20$
- 4. $\underline{\hspace{2cm}} = (33 - 25) * 3$
- 5. $\underline{\hspace{2cm}} = (25 \div 5) + (8 * 4)$
- 6. $(33 + 7) \div (3 + 2) = \underline{\hspace{2cm}}$

Insert parentheses () to make each number sentence true.

- 7. $3 * 6 + 4 = 30$
- 8. $15 = 20 \div 4 + 10$
- 9. $7 + 7 * 3 = 4 * 7$
- 10. $9 * 6 = 20 + 7 * 2$

Insert two sets of parentheses to make each number sentence true.

- 11. $72 \div 9 = 2 * 3 + 18 \div 9$
- 12. $35 \div 42 \div 6 = 10 - 6 + 1$

Write T if it is true, F if it is false, or ? if you can't tell.

- 13. $(6 * 5) \div 3$ _____
- 14. $(3 * 7) \div (15 - 12)$ _____
- 15. $12 + 18 = 1 + (4 * 7)$ _____
- 16. $(4 * 6) + 13 = 47 - 10$ _____
- 17. $15 > (7 * 6) * (10 - 9)$ _____
- 18. $20 < (64 \div 8) * (12 \div 4)$ _____

19. Greg Says, "An equal sign means, *find the answer*". Desiree says, "An equal sign means *the value on both sides is the same*".

- a. Who do you agree with more? Explain your choice.
- b. To find the missing numbers in the extended number sentence $3 + 7 = \underline{\hspace{1cm}} + 4 = 9 + \underline{\hspace{1cm}}$, would Greg or Desiree be more helpful? Explain why.

Practice:

- 20. $5,853 + 4,268 = \underline{\hspace{2cm}}$
- 21. $\underline{\hspace{2cm}} = 8,210 - 654$
- 22. $7,235 - 906 = \underline{\hspace{2cm}}$

STUDY LINK
3•10

Parentheses in Number Sentences



Write the missing number to make each number sentence true.

1. $(45 \div 5) * 3 = \underline{\hspace{2cm}}$

2. $9 + (4 * 6) = \underline{\hspace{2cm}}$

3. $(20 \div 4) \div 5 = \underline{\hspace{2cm}}$

4. $\underline{\hspace{2cm}} = (33 - 25) * 3$

5. $\underline{\hspace{2cm}} = (25 \div 5) + (8 * 4)$

6. $(33 + 7) \div (3 + 2) = \underline{\hspace{2cm}}$

Insert parentheses () to make each number sentence true.

7. $3 * 6 + 4 = 30$

8. $15 = 20 \div 4 + 10$

9. $7 + 7 * 3 = 4 * 7$

10. $9 * 6 = 20 + 7 * 2$

Try This

Insert two sets of parentheses to make each number sentence true.

11. $72 \div 9 = 2 * 3 + 18 \div 9$

12. $35 \div 42 \div 6 = 10 - 6 + 1$

Write T if it is true, F if it is false, or ? if you can't tell.

13. $(6 * 5) \div 3$ _____

14. $(3 * 7) \div (15 - 12)$ _____

15. $30 = 1 + (4 * 6)$ _____

16. $(4 * 6) + 13 = 47 - 10$ _____

17. $15 > (7 * 6) * (10 - 9)$ _____

18. $20 < (64 \div 8) * (12 \div 4)$ _____

Practice

19. _____ = $494 + 3,769$

20. $5,853 + 4,268 =$ _____

21. _____ = $8,210 - 654$

22. $7,235 - 906 =$ _____

SL 4-3-11 Option B

Open Sentences

Name _____

Use a separate sheet of paper if you need more work space for any of these problems. **No Calculators.**

- Todd wants to know the difference between a number sentence and an open sentence. Describe to Todd what to look for.
- Write two number sentences and two open sentences. Circle the variable in each.

For each open sentence complete the table.

	Open Sentence	Variable	Left Member	Right Member	Solution
3.	$25 = 11 + x$				
4.	$p/3 = 12$				

Make a true number sentence by filling in the missing number.

- _____ = $12 / (3 + 3)$
- $(60 - 28) / 4 =$ _____
- $(3 \times 8) \div 6 =$ _____
- $30 - (4 + 6) =$ _____

Make a true number sentence by inserting parentheses.

- $4 * 2 + 10 = 18$
- $16 = 16 - 8 * 2$
- $27 / 9 / 3 = 1$
- $27 / 9 / 3 = 9$

Find the solution of each open sentence below. Write a number sentence with the solution in place of the variable. Check to see whether the number sentence is true.

Example: $6 + x = 14$ **Solution:** 8 **Number sentence:** $6 + 8 = 14$

Open sentence	Solution	Number sentence
13. $12 + x = 32$	_____	_____
14. $s = 200 - 3$	_____	_____
15. $5 * y = 40$	_____	_____
16. $7 = x / 4$	_____	_____
17. $x + 3 = 15 - x$	_____	_____

Practice:

18. $3,238 + 9,784 =$ _____ 19. $9,325 - 756 =$ _____ 20. $4,805 - 2,927 =$ _____

STUDY LINK
3•11

Open Sentences



Write T if the number sentence is true and F if the number sentence is false.

1. $35 = 7 * 5$ _____

2. $43 > 34$ _____

3. $25 + 25 < 50$ _____

4. $49 - (7 \times 7) = 0$ _____

Make a true number sentence by filling in the missing number.

5. _____ = $12 / (3 + 3)$

6. $(60 - 28) / 4 =$ _____

7. $(3 \times 8) \div 6 =$ _____

8. $30 - (4 + 6) =$ _____

Make a true number sentence by inserting parentheses.

9. $4 * 2 + 10 = 18$

10. $16 = 16 - 8 * 2$

11. $27 / 9 / 3 = 1$

12. $27 / 9 / 3 = 9$

Find the solution of each open sentence below. Write a number sentence with the solution in place of the variable. Check to see whether the number sentence is true.

Example: $6 + x = 14$

Solution: 8

Number sentence: $6 + 8 = 14$

Open sentence	Solution	Number sentence
13. $12 + x = 32$	_____	_____
14. $s = 200 - 3$	_____	_____
15. $5 * y = 40$	_____	_____
16. $7 = x / 4$	_____	_____

Practice

17. $366 + 7,565 =$ _____

18. $3,238 + 9,784 =$ _____

19. $9,325 - 756 =$ _____

20. $4,805 - 2,927 =$ _____