MATH

1062

Name _____

Date Issued

Test Score

ACE

GOALS

Cooperative

To learn to work and live with others in unity

- To write number words through hundred millions
- To change the value of a large number by increasing or decreasing one of the digits by a multiple of 10
- To multiply 4-digit numbers by 3-digit numbers
- To round numbers to the nearest multiple of 1,000
- To divide by 2-digit divisors
- To learn about commutative and associative properties of addition and multiplication
- To learn identity properties of addition and multiplication
- To find common factors and determine the GCF
- To write fractions in simplest form
- To identify proper, improper, and equivalent fractions
- To change improper fractions to whole or mixed numbers
- To add and subtract mixed numbers with like fractions and write the answers in simplest form
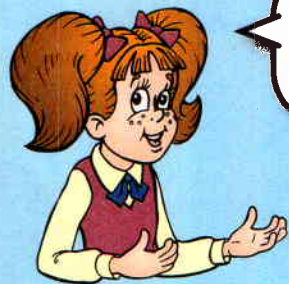- To make and interpret bar graphs
- To solve word problems

Learn this Scripture Verse

Behold, how good and how pleasant it is for brethren to dwell together in unity!

Psalm 133:1

Cooperative

Mother said that she will bake some cookies while we are helping her clean the house.

Daddy always says, "Few burdens are heavy when everybody lifts."

We will cooperate with Mother, and we will also all enjoy the cookies.

NOTE to student and supervisor: Be sure to write over each gray example before proceeding to the next activity question.

Supervisor initial _____   If needed, student should use Math Builder® and/or flashcards for daily drill.

Look at the place value chart and complete the activities.

PLACE VALUE CHART								
millions			thousands			units		
hundred millions	ten millions	(one) millions	hundred thousands	ten thousands	(one) thousands	hundreds	tens	ones

_____ _____ _____ , _____ _____ _____ , _____ _____ _____

(1) The three main headings on this place value chart are _____ , _____ , and _____ .

(2) The three places under each main heading are _____ , _____ , and _____ .

(3) On the blanks under the place value chart, write a 3 in each of the ones' places, write a 5 in each of the tens' places, and write a 2 in each of the hundreds' places.

(4) Write the value of the digit you wrote in the ten millions' place. _____

(5) Write the value of the digit you wrote in the ten thousands' place. _____

(6) Write the value of the digit you wrote in the tens' place. _____

Read these sentences to your supervisor.

(7) The two largest states in the United States are Alaska and Texas. Alaska has an area of 571,951 square miles, or 1,481,352 square kilometers, while the area of Texas is 261,797 square miles, or 691,201 square kilometers.

(8) However, there are more people living in Texas than in Alaska. According to one census, there were 21,325,018 people living in Texas and 634,892 people living in Alaska.

(9) The Pacific Ocean, which has an area of 165,384,000 square kilometers, is over twice as large as the Atlantic Ocean, which has an area of 82,217,000 square kilometers.

Read and fill in the blanks.

(10) _____ , _____ _____ _____ _____
it is for _brethren_ to _dwell_ _together_
_in_ _unity_ !

Psalm 133:1

Supervisor initial _____

For activities (7)–(9), please be sure student reads each number correctly.

Flash through these addition and subtraction facts in 4 minutes or less.

Add. Do not write the answers. **Say** the answers as fast as you can.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
7	9	4	6	8	5	6	7
$+4$	$+2$	$+5$	$+6$	$+4$	$+9$	$+3$	$+2$
?	?	?	?	?	?	?	?

(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
4	8	3	9	5	1	8	6
$+9$	$+5$	$+7$	$+6$	$+6$	$+9$	$+3$	$+4$
?	?	?	?	?	?	?	?

(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
9	4	6	5	7	8	7	5
$+8$	$+7$	$+2$	$+8$	$+0$	$+6$	$+5$	$+3$
?	?	?	?	?	?	?	?

(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)
8	5	9	5	2	7	6	2
$+7$	$+1$	$+7$	$+4$	$+8$	$+3$	$+5$	$+7$
?	?	?	?	?	?	?	?

Subtract. Do not write the answers. **Say** the answers as fast as you can.

(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
8	15	9	12	11	7	10	6
-2	-7	-4	-6	-8	-5	-4	-3
?	?	?	?	?	?	?	?

(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)
14	7	8	7	12	17	4	9
-7	-1	-5	-4	-3	-9	-3	-6
?	?	?	?	?	?	?	?

(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)
18	8	9	11	9	14	16	8
-9	-3	-2	-4	-8	-5	-7	-7
?	?	?	?	?	?	?	?

(57)	(58)	(59)	(60)	(61)	(62)	(63)	(64)
15	9	7	14	10	12	9	10
-9	-1	-2	-8	-5	-5	-5	-7
?	?	?	?	?	?	?	?

Can you say all the answers on this page in 4 minutes or less? Practice until you can. Then say the answers to your supervisor, or ask your supervisor for a student to assist.

Supervisor initial _____

Time student. If needed, assign extra drill on computer or with flashcards. In Math Builder, select "Addition (or Subtraction)"; then select "Basic Addition (or Subtraction) Facts."

Add. If the sum is in the millions, remember to place a comma after the millions' place and after the thousands' place.

(1)
```
  1 1 1
  2 1 7,8 2 3
+ 8 5 6,3 8 6
  1,0 7 4,2 0 9
```

(2)
```
  3 5 3,1 9 3
+ 7 6 3,4 2 3
```

(3)
```
  9 6,5 7 1
+ 3 0,1 7 8
```

(4)
```
  6 4,4 4 6
+   7,9 4 4
```

(5)
```
  5 8 4,9 2 6
+ 7 6 3,2 2 1
```

(6)
```
  5 1 4,9 2 3
+ 5 5 0,6 1 5
```

(7)
```
  1 6,7 6 6
+   8,6 7 1
```

(8)
```
    9,0 7 9
+ 9 7,0 7 1
```

Complete these activities for the number sentence 151 + 39 = 190.

(9) Are the addends even or odd numbers? _____ Is the sum an even or odd number?

_____

(10) Write a number sentence showing the commutative property. _____

(11) Write a number sentence showing the inverse operation. _____

Find the difference.

(12)
```
  4 5 5,6 8 5
- 1 4 6,1 9 3
```

(13)
```
  8 5 0,4 8 6
- 1 7 7,8 2 8
```

(14)
```
  3 5,3 1 1
-   3,9 9 6
```

(15)
```
  3 9,0 6 0
- 1 9,3 7 5
```

Complete this Bible activity and learn some interesting facts about Methuselah, the oldest man who ever lived.

(16) Methuselah was _____ years old when his son Lamech was born (Genesis 5:25).
Lamech was _____ years old when his son Noah was born (Genesis 5:28, 29). Noah was
Methuselah's grandson. Using the information you've gathered so far, Methuselah was
_____ years old when Noah was born. Noah was _____ years old when the Flood
began (Genesis 7:6). Methuselah would have been _____ years old when the Flood began.
Methuselah lived _____ years (Genesis 5:27). Therefore, Methuselah died the year of
the Flood.

Score this page.		Correct mistakes.		Rescore.	
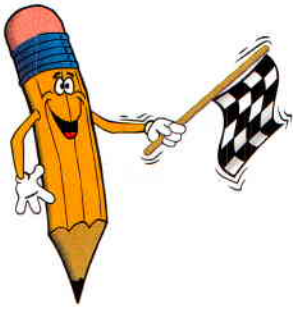
Complete these multiplication and division tables as fast as you can. Some of the division answers will have remainders. Time yourself.

Start time: _____

Finish time: _____

(1)

×	7	3	2	10	6
2	14	6			
9					
3					
7					
1					

(2)

×	9	6	8	1	4
8					
6					
4					
10					
5					

(3)

÷	10	32	27	12	36
4	2R2	8	6R3	3	9
6					
3					
8					
1					

(4)

÷	48	54	24	36	14
5					
8					
6					
9					
7					

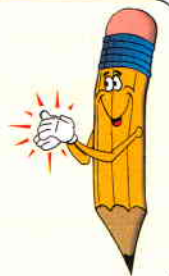| Score this page. ☐	Correct mistakes. ☐	Rescore. ☐

If all 93 problems are correct, and—

If you worked the problems in less than 9 minutes—

You may continue with this PACE. If not, please see your supervisor.

Supervisor initial _____

If needed, assign extra drill on computer or with flashcards. In Math Builder, select "Multiplication (or Division)"; then select "Basic Multiplication (or Division) Facts."

Write the correct answer on each blank.

(1) What is the difference between 12 and 3? _____

(2) What is the product of 12 and 3? _____

(3) What is the sum of 12 and 3? _____

(4) What is the quotient of 12 and 3? _____

(5) What is the product of the difference between 12 and 3 and the quotient of 12 and 3? _____

Write and solve the number sentence being described.

(6) The subtrahend is 18 and the minuend is 48. _____

(7) The divisor is 9 and the dividend is 63. _____

Multiply with 10, 100, or 1,000. Remember: Do not place the commas until you have finished writing the number.

(8) $5,890 \times 100 =$ _____

(9) $400 \times 1,000 =$ _____

(10) $2,300 \times 10 =$ _____

(11) $16,824 \times 10 =$ _____

(12) $1,000 \times 1,400 =$ _____

(13) $100 \times 17 =$ _____

Multiply.

(14)
$$\begin{array}{r} 443 \\ \times\,220 \\ \hline \end{array}$$

(15)
$$\begin{array}{r} 141 \\ \times\,649 \\ \hline \end{array}$$

(16)
$$\begin{array}{r} 618 \\ \times\,301 \\ \hline \end{array}$$

(17)
$$\begin{array}{r} 459 \\ \times\,400 \\ \hline \end{array}$$

(18)
$$\begin{array}{r} 320 \\ \times\,758 \\ \hline \end{array}$$

(19)
$$\begin{array}{r} 1,387 \\ \times\quad 48 \\ \hline \end{array}$$

(20)
$$\begin{array}{r} 872 \\ \times\quad 50 \\ \hline \end{array}$$

(21)
$$\begin{array}{r} 636 \\ \times\quad 76 \\ \hline \end{array}$$

(22)
$$\begin{array}{r} 6,115 \\ \times\qquad 3 \\ \hline \end{array}$$

(23)
$$\begin{array}{r} 540 \\ \times\quad 80 \\ \hline \end{array}$$

Cooperative

I will enjoy playing basketball with my friends this weekend. Exercise helps me think better.

Hmm-m, but if I stay too long, I will not have time to paint Sport's doghouse after the game.

My friends will understand that I must leave early.

Fill in the answers as you read.

When we round numbers to the **nearest multiple of 1,000**, we look at the number in the **hundreds' place**.

1. If the number has **4 or less hundreds**, we **round** the number **down** to the nearest multiple of 1,000. The number 3,**4**69 has **4 hundreds**, so 3,469 is **rounded** (1) _____ to **3,000**.

2. If the number has **5 or more hundreds**, we **round** the number **up** to the nearest multiple of 1,000. The number 21,**6**82 has **6 hundreds**, so 21,682 is **rounded** (2) _____ to **22,000**.

Circle the number in the hundreds' place; then round the number to the nearest multiple of 1,000.

(3)	9,⑧42	10,000	(7)	512		(11)	5,085	
(4)	83,④78	83,000	(8)	2,297		(12)	98,622	
(5)	72,509		(9)	399		(13)	4,199	
(6)	1,785		(10)	3,611		(14)	1,487	

Underline the nearest multiple of 1,000 for each given number.

(15)	4,397	4,000	5,000	4,300	4,400
(16)	850	800	900	1,000	850
(17)	69,702	69,700	69,000	70,000	70,700
(18)	2,655	2,600	2,000	2,700	3,000

| Score pages 9 and 10. | ☐ | Correct mistakes. | ☐ | Rescore. | ☐ |

FLIGHT DISTANCE BETWEEN CITIES

Los Angeles, U.S.A. ⟶	New York City, U.S.A.	3,957 kilometers
New York City, U.S.A. ⟶	Madrid, Spain	6,054 kilometers
Madrid, Spain ⟶	Rome, Italy	1,345 kilometers
Rome, Italy ⟶	Bangkok, Thailand	8,837 kilometers
Bangkok, Thailand ⟶	Sydney, Australia	7,525 kilometers

Round each distance above to the nearest multiple of 10, 100, and 1,000.

		10	100	1,000
(1)	Los Angeles – New York	3,960	4,000	4,000
(2)	New York – Madrid			
(3)	Madrid – Rome			
(4)	Rome – Bangkok			
(5)	Bangkok – Sydney			

Use the distance chart at the top of the page to solve these problems. Remember to write number sentences.

(6) What is the distance between Los Angeles and Madrid if a stop is made in New York City?

(7) How much farther is the distance between Rome and Bangkok than the distance between Madrid and Rome?

(8) Underline the shorter trip. On the blank, write how much shorter.

    a.   Rome to Bangkok to Sydney

    b.   Los Angeles to New York City to Madrid to Rome

    c.   _____

Write the value for the 7 in each of these numbers.

(1) 471,313,462 _____70,000,000_____   (3) 21,472,000 _____

(2) 37,510,041 _____   (4) 5,148,173 _____

Write the numbers in activities (1) and (2) as number words.

(5) _____

_____

(6) _____

_____

Write the number in activity (3) in expanded notation.

(7) _____

_____

Round these numbers to the nearest multiple indicated.

1,000		10		100	
(8) 23,459 _____		(11) 8,173 _____		(14) 15,461 _____	
(9) 732 _____		(12) 909 _____		(15) 745 _____	
(10) 9,621 _____		(13) 25,681 _____		(16) 4,972 _____	

Add.

(17)
```
   3 6 1,8 2 2
 + 6 7 9,2 4 8
```

(18)
```
   4 7,5 6 0
 + 8 5,1 4 5
```

Subtract.

(19)
```
   6 5 2,4 3 7
 - 2 5 5,6 0 8
```

(20)
```
   9 1,5 3 9
 - 4 4,4 7 0
```

Read and fill in the blanks.

(21) _____, ____ _____ _____ _____

it is for brethren to dwell together

in unity!

Psalm 133:1

Score pages 11 and 12. ☐	Correct mistakes. ☐	Rescore. ☐

Divide.

(1) $90\overline{)2{,}177}$ (2) $40\overline{)600}$ (3) $20\overline{)788}$ (4) $50\overline{)2{,}625}$

When our divisor is not a multiple of 10, we round the divisor up or down to the nearest multiple of 10; then we divide just as we did in the activities above.

Divide. Be sure to keep your columns straight.

(5)
$$
\begin{array}{r}
83R7 \\
78\overline{)6{,}481} \\
624 \\
\hline
241 \\
234 \\
\hline
7
\end{array}
$$

Round **78** up to the nearest multiple of 10.
Think **648 ÷ 80** = ?
       64 ÷ 8 = 8
Think **241 ÷ 80** = ?
       24 ÷ 8 = 3

(6)
$$
\begin{array}{r}
28R2 \\
32\overline{)898} \\
64 \\
\hline
258 \\
256 \\
\hline
2
\end{array}
$$

Round **32** down to the nearest multiple of 10.
Think **89 ÷ 30** = ?
       8 ÷ 3 = 2
Think **258 ÷ 30** = ?
       25 ÷ 3 = 8

(7) $72\overline{)3{,}315}$ (8) $87\overline{)1{,}884}$ (9) $53\overline{)924}$ (10) $36\overline{)2{,}082}$

(11) $60\overline{)2{,}520}$ (12) $58\overline{)3{,}808}$ (13) $68\overline{)1{,}642}$ (14) $43\overline{)4{,}042}$

Score this page.	☐	Correct mistakes.	☐	Rescore.	☐

13

Sometimes finding the correct number to use for the quotient takes good detective work. The first number you try may be too large, so you will need to track down the next smaller number. A good detective will enjoy the challenge of tracking down the correct quotient.

Fill in the answers as you read.

$$\begin{array}{r} 5 \\ 33\overline{)1{,}574} \\ 165 \end{array}$$

Round 33 to 30.
$157 \div 30 = ?$
$15 \div 3 = 5$

The 5 is not correct because we cannot subtract 165 from 157.

$$\begin{array}{r} 48 \\ 33\overline{)1{,}574} \\ 132 \\ \hline 254 \\ 264 \end{array}$$

$254 \div 30 = ?$
$25 \div 3 = 8$

(2) The 8 is not correct because we cannot subtract _____ from _____ .

$$\begin{array}{r} 4 \\ 33\overline{)1{,}574} \\ 132 \\ \hline 25 \end{array}$$

Let's try 4.
(1) We can subtract _____ from 157.

Since the difference is less than the divisor (25 < 33), we can bring down the next number and continue.

$$\begin{array}{r} 47\text{R}23 \\ 33\overline{)1{,}574} \\ 132 \\ \hline 254 \\ 231 \\ \hline 23 \end{array}$$

Let's try 7.
(3) We can subtract _____ from _____ .

We have no more numbers to bring down. Remember to write the remainder as part of the quotient.

Divide. If the number you track down is too large, try the next smaller number. Be sure to write your numbers neatly and to keep your columns straight.

(4) $54\overline{)3{,}500}$

(5) $63\overline{)3{,}455}$

(6) $24\overline{)837}$

(7) $32\overline{)896}$

(8) $41\overline{)982}$

Underline the Scripture reference that shows we are to be **cooperative** and live and work with others in unity.
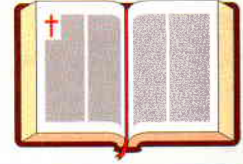
(9)   Psalm 25:6   Matthew 5:16   I Corinthians 1:10

(1)   Last week, Ace and his family read 18 verses from the Bible after breakfast each day and 24 verses after dinner. By the end of the week, how many verses had they read?
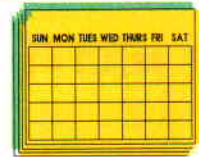
(2)   If Ace memorizes a different Bible verse every 3 days, how many verses will he memorize in 27 days?

(3)   Sandy wants to memorize the 10th chapter of the Gospel of John. How many verses a week will she need to memorize to have the whole chapter memorized in 6 weeks?

(Hint: You can do this yourself—use your Bible!)

(4)   How many days are in 52 weeks?

(5)   How many years was it from 1492, when Columbus discovered the Americas, to 1776, when the Declaration of Independence was signed in the United States?

(6)   Last summer, the Thriftmores drove 686 kilometers to help on a ranch. If they drove at an average speed of 98 kilometers per hour and stopped for a total of 2 hours to eat and get gasoline, how long did it take to travel to the ranch?

Read and fill in the blanks.

(7)   _____, _____ _____ _____ _____ _____ _____

it is for brethren to dwell together

in unity !   Psalm 133:1

Score pages 14 and 15.		Correct mistakes.		Rescore.	

Sometimes the number you try in the quotient may be too small, and you will need to backtrack and find the next larger number.

$$\begin{array}{r} 7 \\ 27\overline{)2{,}189} \\ 189 \\ \hline 29 \end{array}$$

Round 27 up to 30.

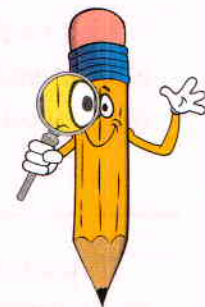$218 \div 30 = ?$

$21 \div 3 = 7$

The 7 is not correct because the **difference cannot be** equal to **or** greater than **the divisor**.

$$\begin{array}{r} 8 \\ 27\overline{)2{,}189} \\ 216 \\ \hline 2 \end{array}$$

Let's try 8.

Since the difference is less than the divisor (2 < 27), we can bring down the next number and continue.

$$\begin{array}{r} 81\text{R}2 \\ 27\overline{)2{,}189} \\ 216 \\ \hline 29 \\ 27 \\ \hline 2 \end{array}$$

Divide. If the number you track down is too small, just erase and try the next larger number.

(1) $48\overline{)1{,}248}$

(2) $36\overline{)2{,}716}$

(3) $67\overline{)6{,}020}$

(4) $29\overline{)725}$

Divide. Remember to round each divisor to the nearest multiple of 10. If the number you try in the quotient does not work, try the next larger or smaller number. Be sure to keep your columns straight.

(5) $33\overline{)611}$

(6) $66\overline{)2{,}849}$

(7) $22\overline{)422}$

(8) $87\overline{)4{,}005}$

Score this page.		Correct mistakes.		Rescore.	

16 **Supervisor initial** _____ Please be sure student understands long division using 2-digit divisors.

CHECKUP

Use the number 875,091,324 to complete the following activities.

(1) Which digit is in the millions' place? _____ In the thousands' place? _____

(2) Write the number in words. _____

_____

(3) Write the number in expanded notation. _____

_____

(4) What is the value of the green digit? _____

(5) Write the number that is 100,000,000 less. _____

(6) Write the number that is 100,000 more. _____

Add.

(7)
```
  5 4 3,1 5 7
+ 2 8 0,3 5 3
```

(8)
```
  9 1,6 3 5
+ 1 6,4 0 7
```

Subtract.

(9)
```
  8 3 4,1 7 9
- 5 3 6,3 8 0
```

(10)
```
  3 0,9 8 4
- 1 8,0 5 6
```

Multiply with 10, 100, or 1,000.

(11) $1,000 \times 1,200 =$ _____

(12) $42,753 \times 10 =$ _____

(13) $100 \times 13 =$ _____

(14) $6,700 \times 10 =$ _____

(15) $200 \times 1,000 =$ _____

(16) $3,650 \times 100 =$ _____

Multiply.

(17)
```
   8 0 0
× 6 2 7
```

(18)
```
  9,5 2 3
×   3 4 2
```

(19)
```
   5 0 6
× 7 1 0
```

(20)
```
  7,4 1 2
×   2 0 5
```

Round each given number to the nearest multiple of 10, 100, and 1,000.

		10	100	1,000
(21)	39,562			
(22)	7,897			
(23)	674			
(24)	42,139			

Divide.

(25) 36)3,3 1 2   (26) 44)3,3 4 6   (27) 83)1,9 9 8   (28) 28)4 6 2

Write number sentences and solve these problems.

(29) Three hundred thirty players signed up for basketball camp. If the camp director makes 22 equal teams, how many players will be on each team?

(30) Last year, Racer could read 175 words per minute. This year, he can read 212 words per minute. How many more words can Racer read in 5 minutes?

Read and fill in the blanks.

(31) _____, ___ _____ _____ ___ _____ _____

it is for brethren to dwell together

in unity!

Psalm 133:1

| Score pages 17 and 18. | ☐ | Correct mistakes. | ☐ | Rescore. | ☐ |

Write **C** for commutative property of addition. Write **A** for associative property of addition.

(1) _____ Changing the way in which addends are grouped will not change the sum.

(2) _____ The addends on both sides of the number sentence are in exactly the same order, but the parentheses are moved to group the addends differently.

(3) _____ Changing the order of the addends will not change the sum.

(4) _____ $(96 + 87) + 13 = 96 + (87 + 13)$

(5) _____ $(18 + 29) + 31 = 31 + (18 + 29)$

(6) _____ $13 + 7 = 20; 7 + 13 = 20$

(7) _____ $72 + (56 + 35) = (72 + 56) + 35$

The **commutative property** also works for multiplication.

$$(4 \times 3) \times 5 = 5 \times (4 \times 3)$$
$$12 \quad \times 5 = 5 \times \quad 12$$
$$60 = 60$$

$2 \times 3 = 6$ $3 \times 2 = 6$
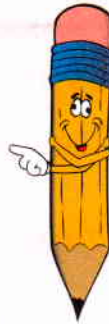
Changing the order of the factors does NOT change the product.

The **associative property** also works for multiplication.

$$(5 \times 3) \times 2 = 5 \times (3 \times 2)$$
$$15 \quad \times 2 = 5 \times \quad 6$$
$$30 = 30$$

Changing the way in which factors are grouped does NOT change the product.

Write the correct number on the blank in each number sentence. Then underline the property of multiplication being demonstrated.

(8) $4 \times ($ _____ $\times 10) = (4 \times 7) \times 10$ commutative   associative

(9) $3 \times 6 = 6 \times$ _____   commutative   associative

(10) _____ $\times (60 \times 4) = (60 \times 4) \times 52$ commutative   associative

(11) $(8 \times 3) \times$ _____ $= 2 \times (8 \times 3)$ commutative   associative

(12) $(12 \times 15) \times 16 = 12 \times ($ _____ $\times 16)$ commutative   associative

In addition, **0** is the **identity element**. If one of two addends is **0**, the other addend and the sum will be the same. The **0** allows the other addend to keep its identity. This is called the **identity property of addition**.

When zero is added to any addend, the sum and that addend are the same.

There are different ways to show the **identity property of addition**.

$7 + 0 = 7$ $(13 + 6) + 0 = 19$ **Notice:** One of the addends must

$0 + 7 = 7$ $12 + (4 - 4) = 12$ be **0** or equal to **0**.

Write the correct number in each blank. Use the identity property of addition.

(1) $9 + \underline{\hspace{1cm}} = 9$

(2) $68 + 0 = \underline{\hspace{1cm}}$

(3) $0 + 5 = \underline{\hspace{1cm}}$

(4) $(11 + 8) + 0 = \underline{\hspace{1cm}}$

(5) $(80 + 30) + \underline{\hspace{1cm}} = 110$

(6) $0 + (6 + \underline{\hspace{1cm}}) = 10$

(7) $52 + (19 - 19) = \underline{\hspace{1cm}}$

(8) $24 + (6 - \underline{\hspace{1cm}}) = 24$

(9) $\underline{\hspace{1cm}} + (2 - 2) = 12$

In multiplication, **1** is the **identity element**. If one of two factors is **1**, the other factor and the product will be the same. The **1** allows the other factor to keep its identity. This is called the **identity property of multiplication**.

When one is multiplied with any factor, the product and that factor are the same.

Here are different ways to show the **identity property of multiplication**.

$7 \times 1 = 7$ $(3 \times 4) \times 1 = 12$ **Notice:** One of the factors must be **1**

$1 \times 7 = 7$ $15 \times (18 - 17) = 15$ or equal to **1**.

Write the correct number in each blank. Use the identity property of multiplication.

(10) $9 \times \underline{\hspace{1cm}} = 9$

(11) $68 \times 1 = \underline{\hspace{1cm}}$

(12) $\underline{\hspace{1cm}} \times 5 = 5$

(13) $(11 \times 8) \times 1 = \underline{\hspace{1cm}}$

(14) $(8 \times 3) \times \underline{\hspace{1cm}} = 24$

(15) $1 \times (2 \times \underline{\hspace{1cm}}) = 12$

(16) $52 \times (19 - 18) = \underline{\hspace{1cm}}$

(17) $24 \times (6 - \underline{\hspace{1cm}}) = 24$

(18) $\underline{\hspace{1cm}} \times (7 - 6) = 18$

Score pages 19 and 20.		Correct mistakes.		Rescore.	

20

(Fill in the answers as you read.

Remember the **key word** to unlock each property.

(1) **Commutative property – Order** (Changing the _____ of the addends or factors does not change the answer.)

(2) **Associative property – Grouping** (Changing the way the addends or factors are _____ within the parentheses does not change the answer.)

(3) **Identity property of addition – Zero** (One of the addends is _____ or equal to _____ .)

(4) **Identity property of multiplication – One** (One of the factors is _____ or equal to _____ .)

(Finish writing the number sentences to show the **commutative property.**

(5) $12 \times 3 =$ _____

(6) $12 \times (3 \times 8) =$ _____

(7) $(26 + 4) + 5 =$ _____

(8) $6 + 10 =$ _____

(Finish placing the parentheses correctly in each number sentence to show the **associative property.**

(9) $27 + (52 + 18) = 27 + 52 + 18$

(10) $16 + 9 + 30 = 16 + (9 + 30)$

(11) $(11 \times 15) \times 22 = 11 \times 15 \times 22$

(12) $50 \times 75 \times 15 = 50 \times (75 \times 15)$

(Write the correct sign (**+**, **×**) in the circle to show the **identity property.**

(13) $1 \bigcirc 18 = 18$

(14) $87 \bigcirc 0 = 87$

(15) $45 \bigcirc (4 - 4) = 45$

(16) $(3 \times 9) \bigcirc 1 = 27$

(17) $61 \bigcirc (36 - 35) = 61$

(18) $0 \bigcirc 114 = 114$

(For each number sentence, indicate which property is being demonstrated by writing **C** for commutative, **A** for associative, or **I** for identity.

(19) $9 \times (9 \times 2) = (9 \times 2) \times 9$ _____

(20) $14 + 0 = 14$ _____

(21) $55 + 5 = 5 + 55$ _____

(22) $(17 + 3) + 0 = 20$ _____

(23) $7 + (3 + 4) = (7 + 3) + 4$ _____

(24) $15 \times (10 - 9) = 15$ _____

(25) $(40 - 40) + 50 = 50$ _____

(26) $(3 \times 25) \times 1 = 75$ _____

| Score this page. | | Correct mistakes. | | Rescore. | |

Supervisor initial _____

Complete the number patterns.

(1) 9, 12, 15, _____ , _____ , _____ , 27, _____ , _____ , 36

(2) 27, 36, _____ , 54, _____ , _____ , 81 , _____ , _____ , 108

(3) _____ , _____ , _____ , 20, _____ , 30, _____ , _____ , _____ , 50

(4) _____ , 90, _____ , _____ , 60 , _____ , _____ , 30 , _____ , 10

Match to complete each factoring rule.

(5) _____ 2 is a factor   (A) of any number whose digits add up to 3 or a multiple of 3.

(6) _____ 5 is a factor   (B) of a number if both 2 and 3 are also factors.

(7) _____ 10 is a factor   (C) of any even number.

(8) _____ 9 is a factor   (D) of any number that ends with 0 or 5.

(9) _____ 6 is a factor   (E) of any number whose digits add up to 9 or a multiple of 9.

(10) _____ 3 is a factor   (F) of any number that ends with 0.

Underline the number that answers *both* descriptions.

(11) A number that is even and has both 5 and 10 as factors.

      32   15   45   20

(12) A number that is a multiple of 3 and has both 2 and 6 as factors.

      9   15   18   21

(13) A number that is a multiple of 3 and has 9 as a factor.

      27   21   30   42

(14) A prime number that is also a factor of 28.

      2   4   5   7

Remember: A prime number is a number that has exactly two factors, the number 1 and the number itself.

(15) A composite number that is also a factor of 34.

      2   34   17   1

Remember: A composite number is a number that has more than two factors.

Circle the composite number(s) and underline the prime number(s). Then write all the factors of each number from least to greatest.

(1) 18 _____

(2) 49 _____

(3) 57 _____

(4) 54 _____

(5) 19 _____

(6) 96 _____

Fill in the answers as you read.

Common factors are factors that are **the same** for 2 or more numbers.

The **factors** of 8 are ①, ②, ④, **8**.

The **factors** of 20 are ①, ②, ④, **5, 10, 20**.

(7) The **common factors** of 8 and 20 are _____ , _____ , **4**.

(8) The **Greatest Common Factor** is the **largest common factor** for 2 or more numbers. The **Greatest Common Factor (GCF)** of 8 and 20 is _____ .

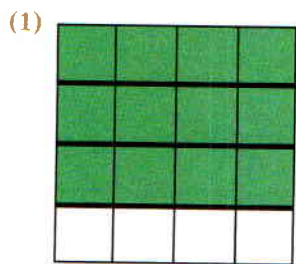Complete this chart to help you find the **Greatest Common Factor (GCF)** for each number pair.

	Number	Factors	Common Factors	GCF
(9)	10	1, 2, 5, 10	1, 5	5
	25	1, 5, 25		
(10)	4			
	12			
(11)	24			
	36			
(12)	9			
	15			
(13)	6			
	8			
(14)	7			
	14			

Score pages 22 and 23. ☐	Correct mistakes. ☐	Rescore. ☐

23

Underline two equivalent fractions for the shaded part of each shape.

(1)

$$\frac{12}{16} \quad \frac{3}{12} \quad \left(\frac{3}{4}\right) \quad \frac{1}{3}$$

(2)

$$\frac{2}{6} \quad \frac{1}{3} \quad \frac{1}{4} \quad \frac{2}{8}$$

(3)

$$\frac{2}{3} \quad \frac{1}{3} \quad \frac{3}{6} \quad \frac{6}{9}$$

(4)

$$\frac{4}{8} \quad \frac{3}{4} \quad \frac{1}{4} \quad \frac{1}{2}$$

(5)

$$\frac{12}{24} \quad \frac{1}{2} \quad \frac{1}{4} \quad \frac{2}{3}$$

(6)
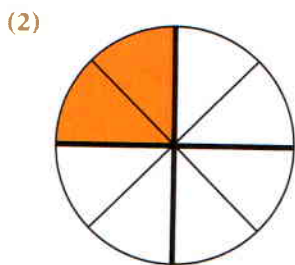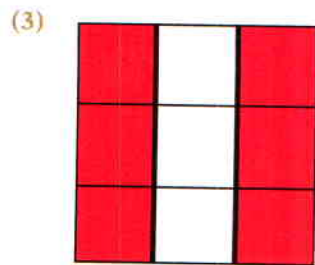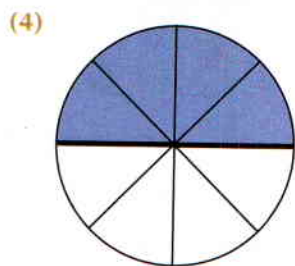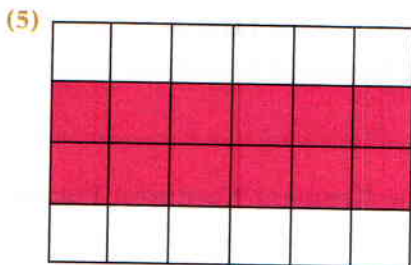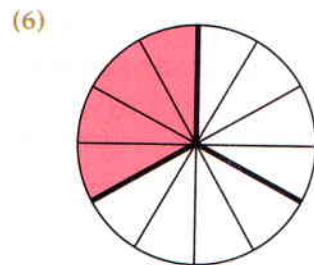
$$\frac{1}{2} \quad \frac{4}{12} \quad \frac{3}{6} \quad \frac{1}{3}$$

In working with fractions, it is often necessary to use the **simplest form** of the fractions. In activity (1), we have underlined the fractions $\frac{12}{16}$ and $\frac{3}{4}$.

Since the fractions are equivalent (both fractions are the same size and have the same value), we would choose $\frac{3}{4}$ as the simpler form.

Look at the equivalent fractions you have underlined in activities (2)–(6). Circle the underlined fraction in each activity that is in **simplest form**.

| Score this page.		Correct mistakes.		Rescore.	

24

For any fraction, it is easy to find an equivalent fraction in **simplest form**.

1. List all the **factors** of both the numerator and the denominator.
2. This time, circle only the **Greatest Common Factor (GCF)**.
3. Divide both the numerator and denominator by the **Greatest Common Factor (GCF)**.

$$\frac{4}{6} \qquad \frac{1,2,4}{1,2,3,6} \qquad \frac{4 \div 2}{6 \div 2} = \frac{2}{3}$$

The fraction $\frac{2}{3}$ is in **simplest form**. In other words, the fraction $\frac{4}{6}$ *reduced to lowest terms* is the equivalent fraction $\frac{2}{3}$. The terms **simplest form** and *reduced to lowest terms* are two ways of expressing the same thing. In this course, we will usually ask you to find an equivalent fraction in **simplest form**.
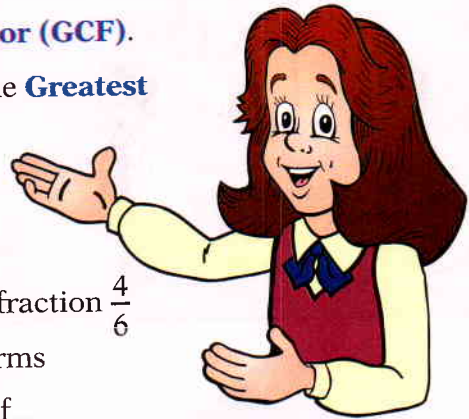
Find the **Greatest Common Factor (GCF)**; then divide both the numerator and the denominator by the **GCF** to find an equivalent fraction in **simplest form**.

(1) $\dfrac{15}{25}$ _____ $\dfrac{1,3,5,15}{1,5,25}$ _____ $\dfrac{15 \div 5}{25 \div 5} = \dfrac{3}{5}$

(5) $\dfrac{4}{20}$ _____ $\dfrac{4 \div}{20 \div} =$

(2) $\dfrac{6}{24}$ _____ $\dfrac{6 \div}{24 \div} =$

(6) $\dfrac{28}{42}$ _____ $\dfrac{28 \div}{42 \div} =$

(3) $\dfrac{8}{12}$ _____ $\dfrac{8 \div}{12 \div} =$

(7) $\dfrac{2}{10}$ _____ $\dfrac{2 \div}{10 \div} =$

(4) $\dfrac{18}{36}$ _____ $\dfrac{18 \div}{36 \div} =$

(8) $\dfrac{16}{24}$ _____ $\dfrac{16 \div}{24 \div} =$

Read and fill in the blanks.

(9) _____, _____ _____ _____ _____ _____ *to dwell together in unity!*

Psalm 133:1

Score this page.	☐	Correct mistakes.	☐	Rescore.	☐

Cooperative
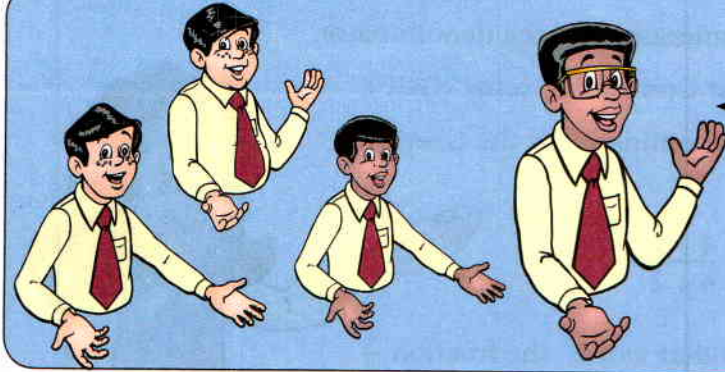
My friends are kind! They brought paint and brushes and helped me paint Sport's doghouse after the ball game. That is what cooperation means . . . *to work and live with others in unity.*

Finding the Greatest Common Factor and writing fractions in simplest form are concepts we *must master* because we will use these concepts nearly every time we work with fractions. Let's shed some light on how to find the **Greatest Common Factor** quickly and easily without listing all the factors.

Fill in the answers as you read.

Let's find the **GCF** of $\frac{4}{8}$. First, see if the **numerator** is a factor of the denominator.

(1) $\boxed{} \times 2 = 8$

Since the **numerator** is a factor of the denominator, you know the **numerator** is the **GCF**. Divide the numerator and the denominator by the **GCF**.

(2) $\dfrac{4}{8} \div \dfrac{\boxed{}}{\boxed{}} = \dfrac{1}{2}$

1st Try using the **numerator** as the GCF.

Find an equivalent fraction in simplest form by using the **numerator** as the **GCF**.

(3) $\dfrac{5}{20} \div \dfrac{5}{5} = \dfrac{1}{4}$

(4) $\dfrac{4}{20} \div$

(5) $\dfrac{3}{9} \div$

(6) $\dfrac{14}{28} \div$

(7) $\dfrac{4}{16} \div$

(8) $\dfrac{8}{40} \div$

(9) $\dfrac{6}{24} \div$

(10) $\dfrac{12}{36} \div$

(11) $\dfrac{3}{18} \div$

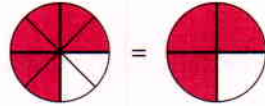| Score this page.		Correct mistakes.		Rescore.	

Fill in the answers as you read.

Sometimes the numerator is not a factor of the denominator, as in the fraction $\frac{6}{8}$. To find the **GCF** of the fraction $\frac{6}{8}$, find the **difference** between the denominator and the numerator.

(1) $8 - 6 = \boxed{}$

Since the **difference** is a factor of both the numerator and the denominator, you have found the **GCF**.

(2) $\frac{6}{8} \div \frac{\boxed{}}{\boxed{}} = \frac{3}{4}$

2ⁿᵈ

Try using the **difference** between the denominator and the numerator as the GCF.

Find an equivalent fraction in simplest form by using the difference between the denominator and the numerator as the GCF.

(3) $\frac{8}{12} \div \frac{4}{4} = \frac{2}{3}$

(5) $\frac{12}{18} \div$

(7) $\frac{16}{24} \div$

(4) $\frac{20}{24} \div$

(6) $\frac{42}{49} \div$

(8) $\frac{24}{36} \div$

For each fraction, find an equivalent fraction in simplest form. First, try using the numerator as the GCF. If that does not work, try using the difference between the denominator and the numerator.

(9) $\frac{12}{48} \div$

(12) $\frac{10}{15} \div$

(15) $\frac{13}{39} \div$

(Hint: Use the numerator.)

(10) $\frac{14}{16} \div$

(13) $\frac{9}{12} \div$

(16) $\frac{15}{20} \div$

(Hint: Use the difference.)

(11) $\frac{6}{18} \div$

(14) $\frac{8}{24} \div$

(17) $\frac{28}{32} \div$

Read and fill in the blanks.

(18) _____, _____ _____ _____ _____ _____ _____ to dwell together in unity !

Psalm 133:1

| Score this page. | ☐ | Correct mistakes. | ☐ | Rescore. | ☐ |

27

Remembering the **rules for finding factors** and **knowing multiples** will also help you find the **GCF**. Write the next 7 multiples of these numbers.

(1) 3, 6, _____, _____, _____, _____, _____, _____, _____

(2) 7, 14, _____, _____, _____, _____, _____, _____, _____

(3) 4, 8, _____, _____, _____, _____, _____, _____, _____

(4) 6, 12, _____, _____, _____, _____, _____, _____, _____

(5) 8, 16, _____, _____, _____, _____, _____, _____, _____

Fill in the answers as you read.

3rd

Try using the **rules for finding factors** to help you find the GCF.

Sometimes the **GCF** is not the **numerator**, and it is not the **difference** between the numerator and the denominator. We will need to use **our rules for finding factors** to find **multiples** of the numerator and denominator.

In the fraction $\frac{12}{20}$, both 12 and 20 are even numbers, so you know 2 is a factor, but 2 is not the largest factor. Quickly try all the multiples of 2 to find the **GCF**.

Is **4** a factor of both 12 and 20? (6) _____

Are 6, 8, 10, or 12 factors of both 12 and 20? (7) _____

So I will use **4** as my **GCF**. (8) $\frac{12}{20} \div \frac{\boxed{}}{\boxed{}} = \frac{3}{5}$

Find an equivalent fraction in simplest form by using the **rules for finding factors** to find the **multiple** that will be the **GCF**.

(9) $\frac{9}{24} \div$ (9 and 24 are multiples of 3)

(10) $\frac{25}{40} \div$ (25 and 40 are multiples of 5)

(11) $\frac{4}{14} \div$ (4 and 14 are multiples of 2)

(12) $\frac{14}{35} \div$ (14 and 35 are multiples of 7)

(13) $\frac{18}{42} \div$ (18 and 42 are multiples of 6)

(14) $\frac{8}{20} \div$ (8 and 20 are multiples of 4)

| Score this page. | ☐ | Correct mistakes. | ☐ | Rescore. | ☐ |

For each fraction, find an equivalent fraction in simplest form. First, try using the **numerator** as the **GCF**. If that does not work, try using the **difference** between the denominator and the numerator. If that does not work, try finding **multiples**.

(1) $\dfrac{5}{10} \div \dfrac{5}{5} = \dfrac{1}{2}$
(Hint: Use the numerator.)

(2) $\dfrac{24}{32}$
(Hint: Use the difference.)

(3) $\dfrac{10}{14}$
(Hint: Use multiples.)

(4) $\dfrac{20}{35}$
(Hint: Use multiples.)

(5) $\dfrac{6}{15}$
(Hint: Use multiples.)

(6) $\dfrac{10}{40}$
(Hint: Use the numerator.)

(7) $\dfrac{6}{36}$

(8) $\dfrac{16}{20}$

(9) $\dfrac{3}{21}$

(10) $\dfrac{28}{42}$

(11) $\dfrac{12}{16}$

(12) $\dfrac{15}{40}$

This time when you write each fraction in simplest form, do the division step mentally and **write only the answer**. To find the **GCF**, remember to use our three guidelines.

(13) $\dfrac{15}{18} =$ THINK: $15 \div 3 = 5$
THINK: $18 \div 3 = 6$

Write: $\dfrac{5}{6}$

(14) $\dfrac{6}{14} =$

(15) $\dfrac{9}{18} =$

(16) $\dfrac{14}{21} =$

(17) $\dfrac{24}{27} =$

(18) $\dfrac{10}{15} =$

(19) $\dfrac{3}{12} =$

(20) $\dfrac{6}{9} =$

(21) $\dfrac{4}{10} =$

(22) $\dfrac{12}{15} =$

(23) $\dfrac{8}{16} =$

(24) $\dfrac{36}{48} =$

(25) $\dfrac{7}{21} =$

Did you follow the three guidelines?

Score this page.		Correct mistakes.		Rescore.	

Sometimes when I find an equivalent fraction, it is not in simplest form.

(1) $\dfrac{20}{36} \div \dfrac{2}{2} = \dfrac{\boxed{}}{\boxed{}}$

You chose a **common factor** that is *not* the GCF. Simply follow our guidelines and reduce the fraction again.

(2) $\dfrac{10}{18} \div \dfrac{2}{2} = \dfrac{\boxed{}}{\boxed{}}$

We can know for sure that a fraction is in simplest form **when the only common factor of both the numerator and denominator is 1**.

$$\dfrac{5}{9} \quad \dfrac{①,5}{①,3,9}$$

Circle the fractions that are in simplest form.

(3) $\dfrac{1}{3}$ $\dfrac{2}{4}$ $\dfrac{3}{5}$ $\dfrac{4}{12}$ $\dfrac{5}{16}$ $\dfrac{6}{18}$

(4) $\dfrac{3}{4}$ $\dfrac{10}{15}$ $\dfrac{21}{27}$ $\dfrac{1}{2}$ $\dfrac{4}{9}$ $\dfrac{30}{31}$

Write commutative, associative, or identity in the blank to indicate which property is being described or demonstrated.

(5)   Parentheses are used to **group** the addends differently. _____

(6)   One of the addends is **0**. _____

(7)   We can change the **order** of the addends without changing the sum. _____

(8)   The identity element is **1**. _____

(9)   The factors can be **grouped** differently without changing the product. _____

(10) $1 + (5 + 8) = (1 + 5) + 8$ _____

(11) $16 \times 45 = 45 \times 16$ _____

(12) $4 + (9 + 2) = (9 + 2) + 4$ _____

(13) $17 \times (15 - 14) = 17$ _____

(14) $35 + (1 \times 0) = 35$ _____

Score this page.	$\boxed{}$	Correct mistakes.	$\boxed{}$	Rescore.	$\boxed{}$

If needed before the Checkup, student should use Math Builder® and/or flashcards for daily drill. In Math Builder, select from the main menu the type of activity needed for extra practice.

CHECKUP

Write the correct term from the box on each blank.

common	denominator	improper	prime
composite	equivalent	numerator	proper

(1) The part of a fraction that tells the total number of equal parts is the _____.

(2) Fractions are _____ if the fractions are the same size or have the same value.

(3) A/An _____ number has only two factors, the number 1 and the number itself.

(4) A/An _____ number has more than two factors.

(5) Factors that are the same for two or more numbers are _____ factors.

Fill in the blanks with the correct answer.

(6) The letters GCF stand for _____ _____ _____.

(7) When the only common factor of both the numerator and denominator is _____, we know a fraction is in simplest form.

(8) Changing the way in which factors are _____ will not change the product according to the associative property of multiplication.

(9) The identity element in addition is _____.

(10) The identity element in multiplication is _____.

(11) Changing the _____ of the factors does not change the product according to the commutative property of multiplication.

Write the correct number on the blank in each number sentence. On the blank within the parentheses after each number sentence, write C for commutative, A for associative, or I for identity to indicate which property is being demonstrated by the number sentence.

(12) $(3 \times \underline{\quad}) \times 9 = 3 \times (8 \times 9)$ (___)

(13) $14 + 7 = 7 + \underline{\quad}$ (___)

(14) $(20 + 5) + \underline{\quad} = 25$ (___)

(15) $40 \times \underline{\quad} = 40$ (___)

(16) $(6 \times 7) \times 9 = \underline{\quad} \times (6 \times 7)$ (___)

(17) $\underline{\quad} \times (4 - 3) = 10$ (___)

(18) $(50 - \underline{\quad}) + 12 = 12$ (___)

(19) $(50 - \underline{\quad}) \times 12 = 12$ (___)

Please continue on the next page.

Complete these activities.

(20) Circle the numbers that are multiples of 7. 21 25 28 35 42 49 55 63

(21) Circle the numbers that are multiples of 9. 24 27 39 45 54 63 72 81

(22) Write only the common factors of 20 and 24. _____

(23) Write only the **GCF** of 18 and 30. _____

Write each fraction in simplest form. Do all the steps mentally and write only the answer.

Remember:

1st - Try the numerator.

2nd - Try the difference.

3rd - Try the rules for finding factors.

(24) $\dfrac{8}{20} =$

(25) $\dfrac{12}{21} =$

(26) $\dfrac{14}{16} =$

(27) $\dfrac{4}{36} =$

(28) $\dfrac{20}{25} =$

(29) $\dfrac{10}{30} =$

(30) $\dfrac{24}{28} =$

(31) $\dfrac{18}{24} =$

(32) $\dfrac{9}{18} =$

Circle two equivalent fractions for the shaded part of each shape.

(33)

$\dfrac{3}{6}$ $\dfrac{1}{2}$

$\dfrac{1}{3}$ $\dfrac{3}{3}$

(34)

$\dfrac{6}{8}$ $\dfrac{2}{8}$

$\dfrac{3}{4}$ $\dfrac{1}{4}$
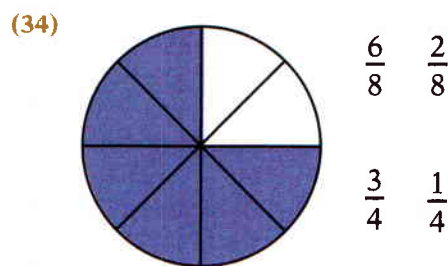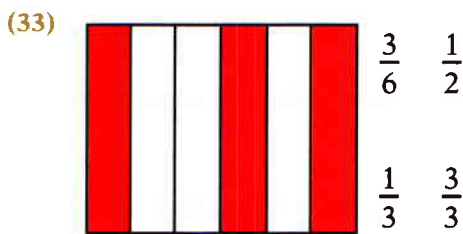
Read and fill in the blanks.

(35) _____, _____ _____ _____ _____

_____ _____ _____ _____ to dwell together

in unity !

Psalm 133:1

| Score pages 31 and 32. | ☐ | Correct mistakes. | ☐ | Rescore. | ☐ |

Multiply.

(1)
```
    7 3 1
  × 3 4 2
```

(2)
```
    5,2 9 0
  ×   5 1 4
```

(3)
```
    2,6 2 4
  ×   8 0 4
```

(4)
```
    7,3 0 4
  ×     3 6
```

Divide.

(5) 56)1,0 6 4

(6) 52)3,3 8 0

(7) 26)4 7 0

(8) 33)2,4 8 6

Answer these questions with a fraction; then write the fraction in simplest form.

(9) Eight of the 20 students in the class finished their goals by noon. What fraction of the class finished their goals by noon?

$\dfrac{8}{20} = \dfrac{2}{5}$

(10) Booker was in school for 6 hours. What fraction of the day was Booker in school?

(11) Booker finished his English goals in 40 minutes. What fraction of an hour did Booker spend on his English goals?

(12) What fraction of the months begin with the letter M?

(13) What fraction of the letters in Alaska are A's?

(14) It rained 18 days in the month of September. What fraction of the month did it rain?

Circle the Bible passage if the people had a cooperative spirit and lived and worked in unity. You may need to circle more than one passage.

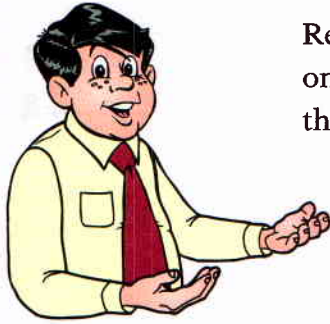(15) Abram's and Lot's herdsmen
Genesis 13:5–7

(17) The disciples of Jesus
Acts 1:12–14

(16) Mary and Martha
Luke 10:38–42

(18) Moses, Aaron, and Hur
Exodus 17:9–12

33

Fractions that have the same denominator are called **like fractions**. Remember, when we add or subtract **like fractions**, we add or subtract only the numerators. The denominator stays the same. Always write the answer in simplest form.

$$\frac{3}{6} + \frac{1}{6} = \frac{4}{6} = \frac{2}{3} \qquad \frac{5}{6} - \frac{3}{6} = \frac{2}{6} = \frac{1}{3}$$

Add these like fractions and write your answers in simplest form.

(1) $\dfrac{4}{15} + \dfrac{6}{15} =$

(2) $\dfrac{3}{8} + \dfrac{3}{8} =$

(3) $\dfrac{2}{12} + \dfrac{7}{12} =$

(4)
$$\begin{array}{r} \frac{13}{20} \\ + \frac{2}{20} \\ \hline \end{array}$$

(5)
$$\begin{array}{r} \frac{7}{16} \\ + \frac{5}{16} \\ \hline \end{array}$$

(6)
$$\begin{array}{r} \frac{4}{14} \\ + \frac{1}{14} \\ \hline \end{array}$$

(7)
$$\begin{array}{r} \frac{11}{24} \\ + \frac{11}{24} \\ \hline \end{array}$$

(8)
$$\begin{array}{r} \frac{11}{18} \\ + \frac{1}{18} \\ \hline \end{array}$$

Subtract these like fractions and write your answers in simplest form.

(9) $\dfrac{7}{8} - \dfrac{3}{8} =$

(10) $\dfrac{9}{10} - \dfrac{5}{10} =$

(11) $\dfrac{7}{9} - \dfrac{1}{9} =$

(12)
$$\begin{array}{r} \frac{29}{30} \\ - \frac{5}{30} \\ \hline \end{array}$$

(13)
$$\begin{array}{r} \frac{12}{18} \\ - \frac{8}{18} \\ \hline \end{array}$$

(14)
$$\begin{array}{r} \frac{13}{14} \\ - \frac{7}{14} \\ \hline \end{array}$$

(15)
$$\begin{array}{r} \frac{13}{21} \\ - \frac{6}{21} \\ \hline \end{array}$$

(16)
$$\begin{array}{r} \frac{18}{24} \\ - \frac{10}{24} \\ \hline \end{array}$$

Fill in the blanks.

(17) _____ , _____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ !

Psalm 133:1

Score pages 33 and 34. ☐   Correct mistakes. ☐   Rescore. ☐

34

When we write mixed numbers in simplest form, the whole number stays the same. Just reduce the fraction to an equivalent fraction in simplest form.

(1) $2\frac{6}{10} = 2\frac{3}{5}$

(2) $18\frac{3}{6} =$

(3) $5\frac{15}{35} =$

(4) $22\frac{11}{22} =$

(5) $36\frac{21}{24} =$

(6) $10\frac{7}{21} =$

(7) $45\frac{9}{24} =$

When we add or subtract mixed numbers, we follow these steps:

$$33\frac{5}{12}$$
$$+42\frac{3}{12}$$
$$\overline{75\frac{8}{12} = 75\frac{2}{3}}$$

1. **Add or subtract the fractions**.

2. **Add or subtract the whole numbers**.

3. **Always write the answer in simplest form**.

$$46\frac{5}{8}$$
$$-32\frac{3}{8}$$
$$\overline{14\frac{2}{8} = 14\frac{1}{4}}$$

Add. Write your answers in simplest form.

(8)
$$13\frac{5}{16}$$
$$+\ 4\frac{9}{16}$$

(9)
$$19\frac{3}{20}$$
$$+21\frac{7}{20}$$

(10)
$$5\frac{4}{9}$$
$$+6\frac{2}{9}$$

(11)
$$32\frac{10}{15}$$
$$+47\frac{2}{15}$$

Subtract. Write your answers in simplest form.

(12)
$$17\frac{19}{20}$$
$$-14\frac{14}{20}$$

(13)
$$26\frac{22}{24}$$
$$-15\frac{1}{24}$$

(14)
$$8\frac{16}{21}$$
$$-4\frac{2}{21}$$

(15)
$$31\frac{7}{10}$$
$$-25\frac{3}{10}$$

(16) $9\frac{7}{9} - 7\frac{4}{9} =$

(17) $6\frac{11}{12} - 5\frac{5}{12} =$

(18) $13\frac{15}{16} - 7\frac{3}{16} =$

Grandfather and Grandmother Resource are an example of what our PACE verse means.

They dwell (live) together in unity because they love God . . . and they love each other!

Solve these problems. Write your answers in simplest form. Remember to write number sentences for each problem.

(1) An animal control officer responded to a call $20 \frac{3}{10}$ kilometers from the animal shelter and to another call $11 \frac{5}{10}$ kilometers from the first call. How many kilometers did the officer travel to answer these calls?

(2) The animal shelter had $6 \frac{7}{16}$ bags of dog food at the shelter and another $22 \frac{5}{16}$ bags stored in another building. During the week, the dogs ate $9 \frac{1}{4}$ bags of food. How many bags of dog food were left at the end of the week?

(3) Cats at the animal shelter used to spend about $15 \frac{5}{12}$ days at the shelter before being adopted. Because of an increase in public awareness, they now spend about $8 \frac{3}{12}$ days before adoption. How much has shelter time been reduced?
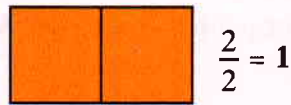
| Score pages 35 and 36. | | Correct mistakes. | | Rescore. | |

When the numerator and the denominator are **the same**, the fraction **equals 1**.

$$\frac{2}{2} = 1 \qquad \frac{6}{6} = 1$$

Write the numerator or denominator that would make a fraction equal to 1.

(1) $\dfrac{\underline{}}{7}$ (2) $\dfrac{12}{\underline{}}$ (3) $\dfrac{9}{\underline{}}$ (4) $\dfrac{4}{\underline{}}$ (5) $\dfrac{\underline{}}{17}$ (6) $\dfrac{\underline{}}{21}$

If the numerator is **less than** the denominator, the fraction is **less than 1**. A fraction that is **less than 1** is a **proper** fraction.
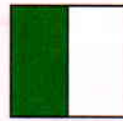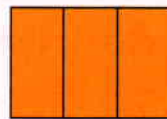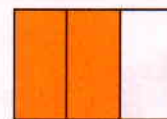
$\dfrac{1}{2}$ **proper** $\dfrac{2}{3}$ **proper**

If the numerator is **greater than** the denominator, the fraction is **more than 1**. A fraction that is **greater than 1** is an **improper** fraction. Fractions that are **equal to 1**, such as $\dfrac{6}{6}$, are also **improper** fractions.

$+ \qquad = \qquad \dfrac{5}{3}$ **improper**

On the first blank, write **P** if the fraction is proper and write **I** if the fraction is improper. On the second blank, write **<** if the fraction is less than **1**, write **=** if the fraction is equal to **1**, or write **>** if the fraction is greater than **1**.

(7) $\dfrac{3}{4}$ **P**   **<**   (9) $\dfrac{5}{5}$ _____ _____   (11) $\dfrac{17}{18}$ _____ _____   (13) $\dfrac{20}{20}$ _____ _____

(8) $\dfrac{9}{4}$ _____ _____   (10) $\dfrac{2}{3}$ _____ _____   (12) $\dfrac{71}{81}$ _____ _____   (14) $\dfrac{99}{100}$ _____ _____
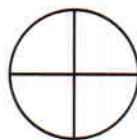
Follow the instructions and color the shapes. Below the shape(s), write a fraction for the part(s) you colored.

(15) Show a proper fraction.

_____ /
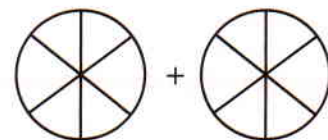
(16) Show an improper fraction equal to 1.

_____

(17) Show an improper fraction.

$+$

_____

| Score this page. | ☐ | Correct mistakes. | ☐ | Rescore. | ☐ |

For activities (15)–(17), please check to see that student has followed the instructions in coloring the shapes and writing the fractions.

Supervisor initial _____

(Fill in the answers as you read.

We usually do not leave fractions written as improper fractions. We change **improper** fractions to whole numbers or mixed numbers.

 $+$ $= \dfrac{7}{4}$

Think: $\dfrac{4}{4}$ or **1** whole shape is colored plus $\dfrac{3}{4}$ of another shape is colored.

(1) $\dfrac{4}{4} + \dfrac{\square}{4} = 1\dfrac{3}{4}$

(2) $\dfrac{7}{4} = \square$

 $= \dfrac{12}{3}$

Think: **4** whole shapes are colored.

(3) $\dfrac{3}{3} + \dfrac{\square}{3} + \dfrac{3}{\square} + \dfrac{\square}{\square} = 4$

(4) $\dfrac{12}{3} = \square$

We can also change **improper** fractions to whole numbers or mixed numbers by **dividing**. Remember, the division line in a fraction means "**divided by.**" The **improper** fraction $\dfrac{17}{5}$ can be read "17 **divided by** 5."

We can think:
$$\begin{array}{r} 3\,R\,2 = 3\frac{2}{5} \\ 5\overline{)17} \\ \underline{15} \\ 2 \end{array}$$
or $17 \div 5 = 3\dfrac{2}{5}$

(5) $\dfrac{17}{5} = \square$

NOTE: To change improper fractions to whole or mixed numbers, you will usually do the division *mentally*. However, if you are working with large numbers, you may need to write out the division problem.

(Change each improper fraction to a whole number or a mixed number.

(6) $\dfrac{25}{7} = 3\dfrac{4}{7}$

(7) $\dfrac{14}{5} =$

(8) $\dfrac{16}{4} =$

(9) $\dfrac{35}{6} =$

(10) $\dfrac{37}{12} =$

(11) $\dfrac{29}{8} =$

(12) $\dfrac{63}{9} =$

(13) $\dfrac{43}{10} =$

(Fill in the blanks.

(14) _____ , _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____

_____ _____ !

Psalm 133:1

Sometimes when we change improper fractions to whole or mixed numbers, the fraction is not in simplest form. We must reduce the fraction to an equivalent fraction in simplest form.

$$\frac{22}{6} = 3\frac{4}{6} = 3\frac{2}{3}$$

Change each improper fraction to a whole or mixed number in simplest form.

(1) $\frac{33}{9} =$

(2) $\frac{14}{8} =$

(3) $\frac{35}{10} =$

(4) $\frac{32}{12} =$

(5) $\frac{92}{11} =$

(6) $\frac{100}{10} =$

(7) $\frac{10}{6} =$

(8) $\frac{6}{4} =$

(9) $\frac{18}{10} =$

Add. Change each improper fraction to a whole or mixed number in simplest form.

(10)
$$\frac{15}{16}$$
$$+\frac{9}{16}$$
$$\overline{}$$
$$\frac{24}{16} = 1\frac{8}{16} = 1\frac{1}{2}$$

(11)
$$\frac{5}{8}$$
$$+\frac{5}{8}$$
$$\overline{}$$

(12)
$$\frac{20}{24}$$
$$+\frac{13}{24}$$
$$\overline{}$$

(13)
$$\frac{5}{7}$$
$$+\frac{2}{7}$$
$$\overline{}$$

(14) $\frac{10}{12} + \frac{11}{12} =$

(15) $\frac{8}{14} + \frac{12}{14} =$

Write proper or improper on the blank.

(16) A fraction whose numerator is greater than the denominator is _____.

(17) A fraction whose numerator and denominator are the same is _____.

(18) A fraction whose numerator is less than the denominator is _____.

Score pages 38 and 39.	☐	Correct mistakes.	☐	Rescore.	☐

What if the improper fraction is part of a mixed number, such as $3\frac{7}{4}$?

We need to change the improper fraction ($\frac{7}{4}$) to a whole or mixed number ($1\frac{3}{4}$) just as we have been doing. Then we add this mixed number ($1\frac{3}{4}$) to the original whole number (3). $3\frac{7}{4} = 3 + 1\frac{3}{4} = 4\frac{3}{4}$

Change each of these mixed numbers with improper fractions to whole numbers or to mixed numbers with proper fractions.

(1) $18\frac{7}{3} = 18 + 2\frac{1}{3} = 20\frac{1}{3}$

(2) $10\frac{10}{7} =$

(3) $52\frac{19}{12} =$

(4) $9\frac{16}{4} =$

(5) $1\frac{19}{6} =$

(6) $7\frac{33}{10} =$

Now do the addition step mentally and write just the answer. $35 + 3\frac{3}{4}$

$$35\frac{15}{4} = 38\frac{3}{4}$$

(7) $12\frac{17}{8} = 14\frac{1}{8}$

(8) $27\frac{13}{3} =$

(9) $75\frac{8}{5} =$

(10) $3\frac{16}{7} =$

(11) $6\frac{18}{9} =$

(12) $2\frac{15}{11} =$

In the problems above, the answers were already in simplest form. In the problems below, you will need to write your answers in simplest form.

(13) $4\frac{20}{8} = 6\frac{4}{8} = 6\frac{1}{2}$

(14) $5\frac{12}{10} =$

(15) $3\frac{25}{15} =$

(16) $9\frac{14}{8} =$

(17) $7\frac{18}{6} =$

(18) $10\frac{45}{9} =$

| Score this page. | | Correct mistakes. | | Rescore. | |

Add. Write your answers in simplest form.

(1) $22\frac{7}{9}$ (with small $\frac{1}{9}$ above)

$+\ 18\frac{8}{9}$

$40\frac{15}{9} = 41\frac{6}{9} = 41\frac{2}{3}$

(2) $19\frac{5}{6}$

$+\ 33\frac{5}{6}$

(3) $45\frac{5}{7}$

$+\ \ 3\frac{2}{7}$

(4) $14\frac{11}{12}$

$+\ 17\frac{11}{12}$

(5) $71\frac{20}{21}$

$+\ 15\frac{8}{21}$

(6) $10\frac{14}{15}$

$+\ 12\frac{7}{15}$

Now let's carefully put it all together. Add. Some answers have mixed numbers with improper fractions. Some have mixed numbers with proper fractions. Be sure to write all answers in simplest form.

(7) $3\frac{7}{8}$

$+\ 3\frac{7}{8}$

(8) $4\frac{8}{14}$

$+\ \ 9\frac{10}{14}$

(9) $11\frac{7}{15}$

$+\ 37\frac{3}{15}$

(10) $5\frac{9}{13}$

$+\ 2\frac{4}{13}$

Subtract. Write your answers in simplest form.

(11) $8\frac{13}{21}$

$-\ 5\frac{4}{21}$

(12) $35\frac{15}{16}$

$-\ 23\frac{5}{16}$

(13) $16\frac{14}{18}$

$-\ 12\frac{10}{18}$

(14) $9\frac{7}{10}$

$-\ 6\frac{5}{10}$

Write number sentences and solve these problems. Write your answers in simplest form.

(1) (a) One animal control officer traveled $19\frac{8}{10}$ kilometers to respond to a call about a stray dog in a mobile home park. If he returned to the shelter by the same route, how many kilometers did he travel?

(b) Another animal control officer traveled $11\frac{6}{10}$ kilometers to help a little boy get his cat out of a tree. On the way back, the officer checked the neighborhood for stray animals. His return trip was $16\frac{6}{10}$ kilometers. How many kilometers shorter was his round trip than the first officer's round trip?

(2) On Saturday, Racer helped at the animal shelter. He spent $3\frac{5}{12}$ hours exercising the dogs and $2\frac{10}{12}$ hours cleaning. How much time did Racer spend at the shelter?

(3) The animal control supervisor worked $51\frac{3}{4}$ hours last week. If he normally works about $44\frac{1}{4}$ hours, how many extra hours did he work last week?
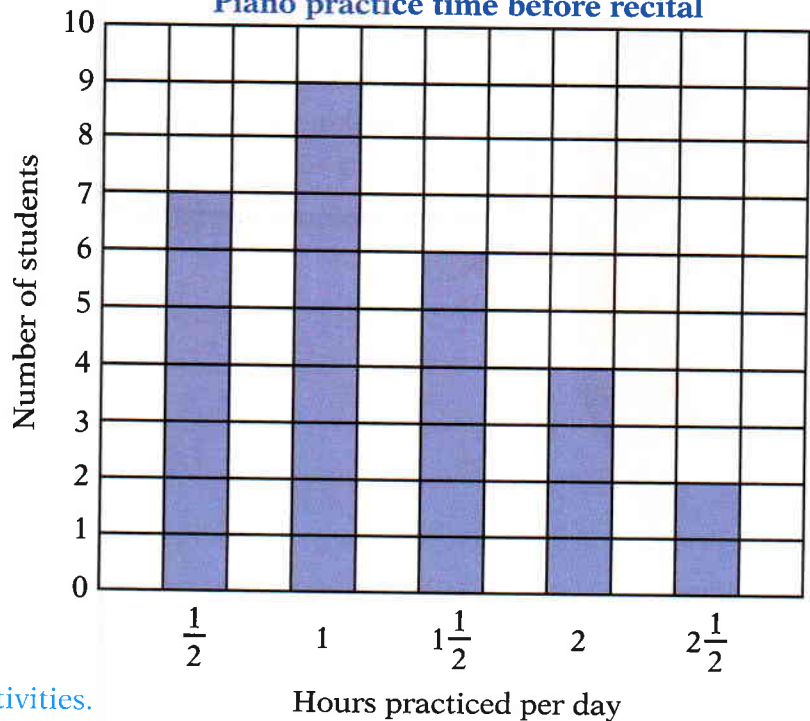
Fill in the blanks.

(4) _____, ____ ____ ____ ____ ____

____ ____ ____ ____ ____ ____ ____

____ ____ !

Psalm 133:1

Piano practice time before recital

Number of students (vertical axis)

Hours practiced per day (horizontal axis: $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$)

A **bar graph** is a way of showing information so comparison can be made quickly.

These students were preparing for a piano recital. The bar graph shows how many hours per day the students practiced.

Study the bar graph and complete these activities.

(1) How many students practiced 2 hours a day? _____4_____

(2) The greatest number of students practiced _____ hour(s) per day.

(3) The fewest number of students practiced _____ hour(s) per day.

(4) How many more students practiced $\frac{1}{2}$ hour than $1\frac{1}{2}$ hours? _____

(5) How many fewer students practiced $2\frac{1}{2}$ hours than $1\frac{1}{2}$ hours? _____

(6) As you move across the graph, each bar on the graph represents _____ more time than the bar on its left.

(7) If each student added his practice time for 6 days, how many students practiced a total of 12 hours? _____ How many students practiced a total of 3 hours? _____

(8) What was the total number of students preparing for the recital? _____

Solve these problems.

(9) The recital was on Saturday afternoon. It began at 1:30 and lasted $2\frac{1}{2}$ hours. What time did the recital end? _____

(10) The reception after the recital lasted until 5:30. How long was the reception? _____

(11) After the reception, Christi and her mother spent 40 minutes helping with the cleanup and another 20 minutes driving home. What time did they arrive home? _____
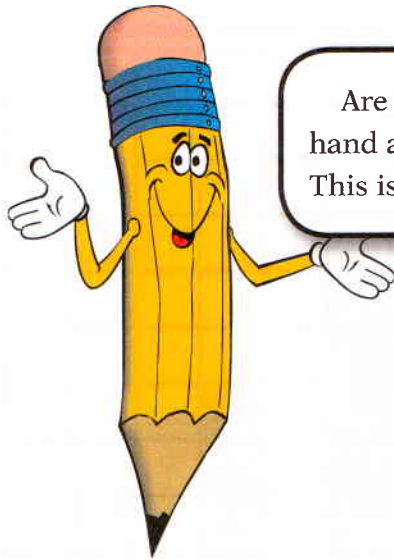
Are you ready to try your hand at making a bar graph? This is going to be fun!

When J. Michael and his family returned from the symphony, J. Michael made a bar graph to show the number of people he had seen playing instruments in each of the five sections of the orchestra. He had counted 36 people in the **upper strings section** (violins), 25 people in the **lower strings section** (cellos, violas, and bass violins), 18 people in the **woodwind section** (clarinets, flutes, oboes, and bassoons), 15 people in the **brass section** (trumpets, French horns, tuba, and trombones), and 3 people in the **percussion section** (kettledrums, cymbals, and bells).

Finish labeling and filling in J. Michael's horizontal bar graph, starting with the smallest and ending with the largest group. Then complete the activities below.

(1)

Symphony orchestra

Percussion

Sections

0   5   10   15   **20**   _____   _____   _____

Number of players
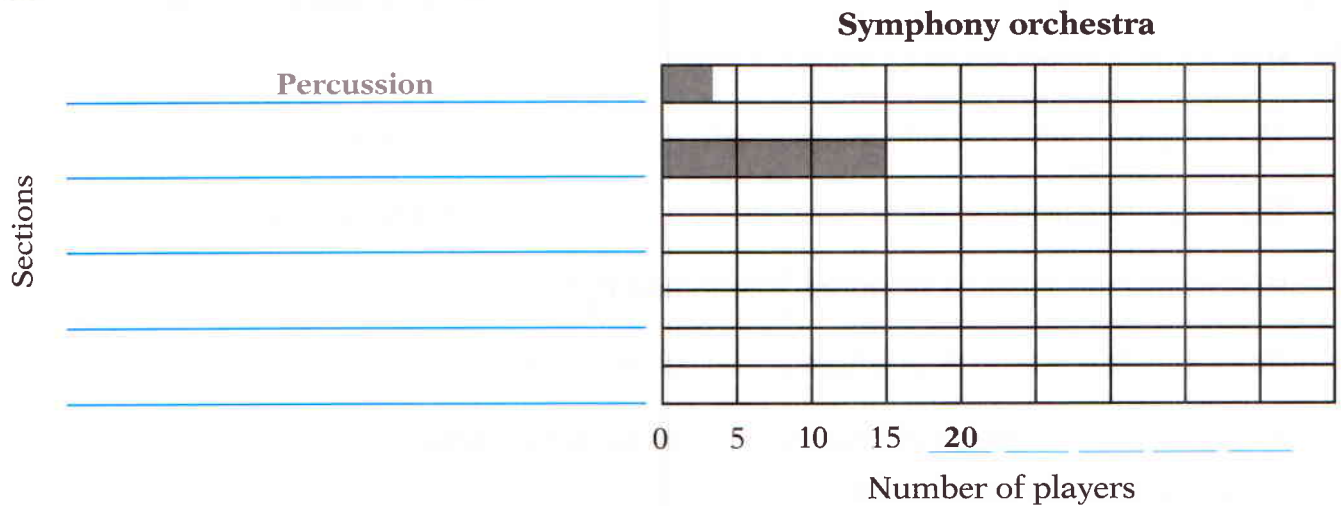
(2) To have 100 members in the orchestra, how many more people would need to join?

_____

(3) The number of people in what three sections together equal the number of people in the upper strings section? _____ , _____ , _____

(4) How many more people would need to be added to the brass section to equal the number of people in the lower strings section? _____

Score pages 43 and 44.		Correct mistakes.		Rescore.	

Supervisor initial _____

If needed before the Checkup, student should use Math Builder® and/or flashcards for daily drill. In Math Builder, select "Fractions"; then select "Addition (or Subtraction)."

CHECKUP

Write a fraction for each of the following; then write the fraction in simplest form.

(1) Miriam had 6 pages to complete for her English goal. She was only able to complete 4 of those pages. What fraction of her goal did she complete? _____ What fraction of her goal does she have for homework? _____

(2) First, Pudge filled $\frac{5}{8}$ of a glass with water. Then he added $\frac{3}{8}$ of a glass of water to it. What fraction of the glass is full? _____

(3) There were 30 members in the band. If 7 played trumpets, 2 played French horns, and 5 played trombones, what fraction of the band played brass instruments? _____ What fraction of the band did not play brass instruments? _____

Circle the proper fractions and underline the improper fractions. On the blank, write < if the fraction is less than 1, write = if the fraction is equal to 1, or write > if the fraction is greater than 1.

(4) $\frac{5}{6}$ ___   **(5)** $\frac{3}{8}$ ___   **(6)** $\frac{23}{14}$ ___   **(7)** $\frac{11}{11}$ ___   **(8)** $\frac{4}{3}$ ___

Write these fractions and mixed numbers in simplest form.

(9) $\frac{15}{6}=$ **(10)** $8\frac{20}{12}=$ **(11)** $3\frac{12}{16}=$ **(12)** $4\frac{25}{15}=$

Add or subtract. Write your answers in simplest form.

(13) $14\frac{4}{21}$ $+18\frac{20}{21}$

(14) $23\frac{6}{8}$ $+7\frac{6}{8}$

(15) $9\frac{1}{12}$ $+5\frac{8}{12}$

(16) $17\frac{13}{14}$ $-10\frac{5}{14}$

(17) $29\frac{19}{20}$ $-24\frac{1}{20}$

(18) $7\frac{3}{24}$ $-4\frac{1}{24}$

(19) $41\frac{17}{18}$ $-22\frac{2}{18}$

Please continue on the next page.

45

Before basketball season, the coaches asked the boys to exercise each day for 5 days.

(Finish labeling and filling in this vertical bar graph to show the total amount of time each boy exercised. Then complete activities (21)–(23).

✦ Ace exercised $\frac{1}{2}$ hour each day Monday through Friday.

✦ Booker exercised 1 hour each day Monday and Tuesday, and $\frac{1}{2}$ hour each day Wednesday through Friday.

✦ Reginald exercised $\frac{1}{4}$ hour each day Monday through Thursday and 1 hour on Friday.

✦ Racer exercised $\frac{1}{2}$ hour each day Monday through Wednesday and 1 hour each day Thursday and Friday.

✦ J. Michael exercised 1 hour each day Monday through Wednesday and $\frac{1}{2}$ hour each day Thursday and Friday.

(20)

Exercise Program

Total hours

2

1

0

Ace

Booker
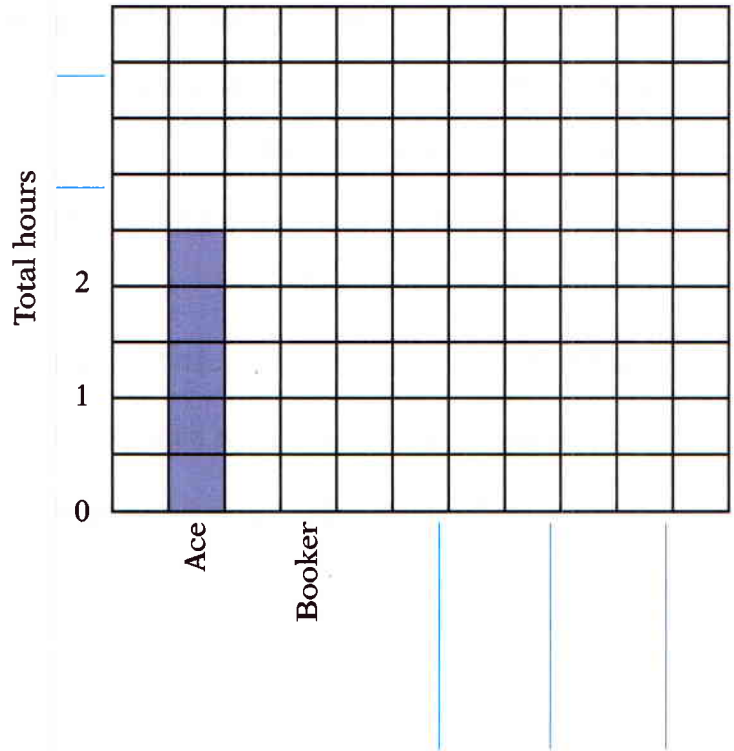
(21) Which boys exercised the same number of hours? _____ _____

(22) Who exercised the most hours during the five days? _____

(23) If Reginald exercised $\frac{1}{2}$ hour on Saturday, his time would be equal to which boy's time?

_____

(Fill in the blanks.

(24) _____ , _____ _____ _____ _____

_____ _____ _____ _____ _____ _____

_____ _____ !

Psalm 133:1

| Score pages 45 and 46. | ☐ | Correct mistakes. | ☐ | Rescore. | ☐ |

46

My score _____

SELF TEST

Complete these activities. (2 points each)

(1) Write the number that has a 5 in the hundred millions' place and in the ten thousands' place, a 9 in the millions' place, an 8 in the hundred thousands' place and in the tens' place, and a 0 in all other places. _____

(2) Write the number 403,740,018 in number words. _____

_____

(3) Write the number that is 10,000 less than the number in activity (2). _____

(4) Write the number that is 10,000,000 more than the number in activity (2). _____

Round these numbers to the nearest multiple of 10 and 1,000.

	10	1,000			10	1,000
(5) 12,675	_____	_____		(7) 552	_____	_____
(6) 4,958	_____	_____		(8) 7,393	_____	_____

Divide.

(9) $23\overline{)1{,}257}$

(10) $78\overline{)3{,}435}$

(11) $52\overline{)3{,}902}$

(12) $35\overline{)1{,}485}$

Multiply.

(13)
$$\begin{array}{r} 7{,}341 \\ \times\ \ \ 214 \\ \hline \end{array}$$

(14)
$$\begin{array}{r} 813 \\ \times 902 \\ \hline \end{array}$$

(15)
$$\begin{array}{r} 852 \\ \times 563 \\ \hline \end{array}$$

(16)
$$\begin{array}{r} 6{,}951 \\ \times\ \ \ 700 \\ \hline \end{array}$$

Please continue on the next page.

Write **C** for commutative, **A** for associative, or **I** for identity.

(17) _____ $35 + (5 + 6) = (5 + 6) + 35$

(18) _____ $48 \times 1 = 48$

(19) _____ $6 \times (0 + 1) = 6$

(20) _____ $10 \times (3 \times 2) = (10 \times 3) \times 2$

(21) _____ $(15 - 15) + 3 = 3$

(22) _____ $(13 \times 8) \times 12 = 13 \times (8 \times 12)$

(23) _____ $5 \times 7 = 35;\ 7 \times 5 = 35$

(24) _____ $7 + (11 - 11) = 7$

(25) When one is multiplied with any factor, the product and that factor are the same. _____

Circle the common factors of 12 and 18. Draw a box around the GCF.

(26) 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Circle two equivalent fractions for the colored part of this shape.

(27) $\dfrac{3}{4}$ $\dfrac{6}{8}$ $\dfrac{2}{8}$ $\dfrac{1}{2}$
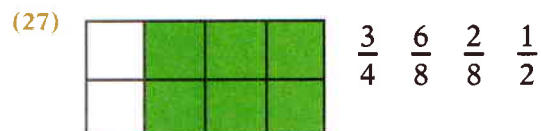
Circle the fractions that are in simplest form.

(28) $\dfrac{2}{3}$ $\dfrac{5}{9}$ $\dfrac{8}{12}$ $\dfrac{12}{18}$ $\dfrac{17}{21}$

Circle the proper fractions. Draw a box around the improper fractions equal to more than 1. Underline the improper fraction equal to 1.

(29) $\dfrac{13}{14}$

(30) $\dfrac{10}{10}$

(31) $\dfrac{6}{8}$

(32) $\dfrac{2}{3}$

(33) $\dfrac{20}{15}$

(34) $\dfrac{6}{5}$

Write these fractions and mixed numbers in simplest form.

(35) $1\dfrac{18}{15} =$

(36) $4\dfrac{21}{27} =$

(37) $\dfrac{37}{5} =$

(38) $7\dfrac{20}{4} =$

Add or subtract. Write your answers in simplest form.

(39) $11\dfrac{12}{14}$
$+\ 8\dfrac{12}{14}$

(40) $6\dfrac{10}{15}$
$+2\dfrac{11}{15}$

(41) $23\dfrac{8}{24}$
$+33\dfrac{4}{24}$
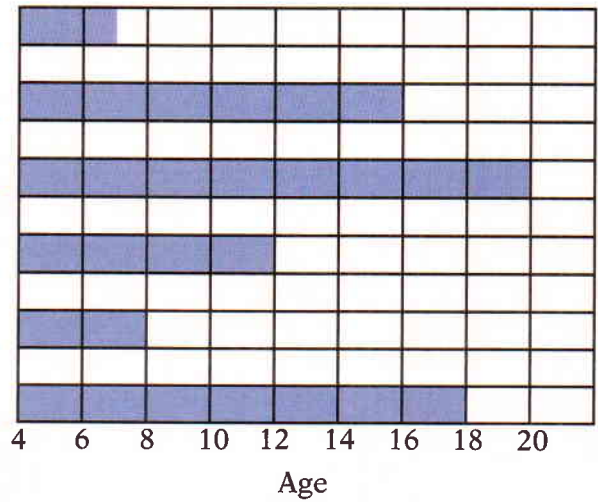
(42) $14\dfrac{5}{6} - 8\dfrac{3}{6} =$

(43) $4\dfrac{12}{15} - 3\dfrac{3}{15} =$

(44) $9\dfrac{7}{9} - 5\dfrac{2}{9} =$

48

Look up the Bible reference for each king, and write his name beside the bar on the graph that shows how old he was when he became king of Judah. Then complete the activities below the graph.

(45)

Kings of Judah

Manasseh – II Kings 21:1

Ahaz – II Kings 16:2

Azariah – II Kings 14:21

Josiah – II Kings 22:1

Jehoash – II Kings 11:21

Jehoiachin – II Kings 24:8

Name of king _____

_____

_____

_____

_____

_____

4   6   8   10 12 14 16 18 20

Age

(46) What were the ages of the two men who were closest in age when they became kings of Judah? _____ and _____

(47) Name the two men who had the greatest difference in their ages when they became kings of Judah. _____ and _____

(48) How many men became kings of Judah before age 15? _____

Fill in the blanks. Say the verse to your supervisor.   (4 points)

(49) _____, _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____ _____

_____ _____ _____!

Psalm 133:1

| Score pages 47, 48, and 49. | ☐ | Correct mistakes. | ☐ | Rescore. | ☐ |

With the Lord's help, I have done my best. Now I will:
1. Find and learn the answers I missed on the Self Test.
2. Understand all the concepts on the Checkups and Self Test.
3. Turn in my PACE to my supervisor.

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