## MATHEMATICS ITEMS

## Guide to the Content and Layout of This Book

The Mathematics Items book contains, in a ready-to-use form, the releasedTIMSS 1995 and TIMSS 2003 mathematics assessment items that appeared in Book 3, Mathematics Concepts and Mathematics Items. Each item is presented on a separate page to facilitate printing.

The two books are designed to be used in tandem. The Mathematics Items book is designed to facilitate the construction of sets of items tailored to the purpose of the user-most likely a classroom teacher. Users can select items for their own purpose based on their reading of the Mathematics Concepts and Mathematics Items book, print these, and administer them to students. Student responses can be scored using the scoring instructions presented in the Mathematics Concepts and Mathematics Items book and may be compared to the international benchmarks presented there.

When you subtract one of the numbers below from 900, the answer is greater than 300 . Which number is it?
A. 823
B. 712
C. 667
D. 579

Item Number: 13

What is 3 times 23 ?
A. 323
B. 233
C. 69
D. 26

Item Number: 14
Subtract: 6,000 $\underline{-2,369}$
A. 4,369
B. 3,742
C. 3,631
D. 3,531

Item Number: 19
$25 \times 18$ is more than $24 \times 18$. How much more?
A. 1
B. 18
C. 24
D. 25

Item Number: J4

Here is part of a wall chart that lists numbers from 1 to 100 .

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 |  |  |  |  |  |

Below is part of the same wall chart. What number should be in the box with the question mark inside?

43

A. 34
B. 44
C. 54
D. 64

Item Number: J9

$$
\begin{aligned}
& \text { Add: 6,971 } \\
& +5,291
\end{aligned}
$$

A. 11,162
B. 12,162
C. 12,262
D. $1,211,162$

Item Number: K2

In which pair of numbers is the second number 100 more than the first number?
A. 199 and 209
B. 4,236 and 4,246
C. 9,635 and 9,735
D. 51,863 and 52,863
$\square$ stands for a number. $7 \times \square$ will always give the same answer as
A. $\square \times 7$
B. $\square+7$
C. $\square-7$
D. $7+\square$
E. $\square \div 7$

Item Number: M3

John wanted to use his calculator to add 1,463 and 319. He entered $1,263+319$ by mistake. What could he do to correct his mistake?
A. Add 200.
B. Add 2.
C. Subtract 2.
D. Subtract 200.

Which of these is the largest number?
A. 2,735
B. 2,537
C. 2,573
D. 2,753

Item Number: M8

Here is a number sentence.
$2,000+\quad+30+9=2,739$

What number goes where the is to make this sentence true?

Answer: $\qquad$

Item Number: S2

What is the smallest whole number that you can make using the digits $4,3,9$ and 1 ? Use each digit only once.

## Answer:

$\qquad$


Item Number: U5

Write the number that is 1,000 more than 56,821 .

Answer: $\qquad$

Item Number: V2

What is 5 less than 203 ?

Answer: $\qquad$

Item Number: V3

In a game, Mysong and Naoki are making problems. They each have four cards like these.


The winner of the game is the person who can make the problem with the largest answer.


Who won this game? $\qquad$
How do you know?

Write numbers in the squares below to show how you would place the cards to beat both Mysong and Naoki.


Item Number: V4A

In a game, Mysong and Naoki are making problems. They each have four cards like these.


The winner of the game is the person who can make the problem with the largest answer.


Who won this game? $\qquad$
How do you know?
 $\qquad$

Write numbers in the squares below to show how you would place the cards to beat both Mysong and Naoki.


Item Number: V4B
0.4 is the same as
A. four
B. four tenths
C. four hundredths
D. one-fourth

Mario uses 5 tomatoes to make half a liter of tomato sauce.
How much sauce can he make from 15 tomatoes?
A. A liter and a half
B. Two liters
C. Two liters and a half
D. Three liters

Each figure represents a fraction.


Which two figures represent the same fraction?
A. 1 and 2
B. 1 and 4
C. 2 and 3
D. 3 and 4

Item Number: 18

Part of the figure is shaded.


What fraction of the figure is shaded?
A. $\frac{5}{4}$
B. $\frac{4}{5}$
C. $\frac{6}{9}$
D. $\frac{5}{9}$

Item Number: J7

There are 54 marbles, and they are put into 6 bags, so that the same number of marbles is in each bag. How many marbles would 2 bags contain?
A. 108 marbles
B. 18 marbles
C. 15 marbles
D. 12 marbles
E. 9 marbles

Item Number: K9


Item Number: M5

Julie put a box on a shelf that is 96.4 centimeters long. The box is 33.2 centimeters long. What is the longest box she could put on the rest of the shelf?
Show all your work.

Answer: $\qquad$

Item Number: S3

A teacher marks 10 of her pupils' tests every half hour. It takes her one and one-half hours to mark all her pupils' tests. How many pupils are in her class?

Answer: $\qquad$

Item Number: S4

There are 10 girls and 20 boys in Juanita's class. Juanita said that there is one girl for every two boys. Her friend Amanda said that means $\frac{1}{2}$ of all the students in the class are girls.

How many students are there in Juanita's class? Answer: $\qquad$
Is Juanita right? Answer: $\qquad$
Use words or pictures to explain why.

Is Amanda right? Answer: $\qquad$
Use words and pictures to explain why.

There are 10 girls and 20 boys in Juanita's class. Juanita said that there is one girl for every two boys. Her friend Amanda said that means $\frac{1}{2}$ of all the students in the class are girls.

How many students are there in Juanita's class? Answer: $\qquad$
Is Juanita right? Answer: $\qquad$
Use words or pictures to explain why.

Is Amanda right? Answer: $\qquad$
Use words and pictures to explain why.

Write a fraction that is larger than $\frac{2}{7}$.

Answer: $\qquad$

Item Number: U2

Maria and her sister Louisa leave home at the same time and ride their bicycles to school 9 kilometers away.

Maria rides at a rate of 3 kilometers in 10 minutes. How long will it take her to get to school?

Answer: $\qquad$ minutes

Louisa rides at a rate of 1 kilometer in 3 minutes. How long will it take her to get to school?

Answer: $\qquad$ minutes

Who arrives at school first?
Answer: $\qquad$

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Answer: $\qquad$ minutes

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Answer: $\qquad$ minutes

Who arrives at school first?
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Louisa rides at a rate of 1 kilometer in 3 minutes. How long will it take her to get to school?

Answer: $\qquad$ minutes

Who arrives at school first?

Answer: $\qquad$

Item Number: U3C

Sam said that $\frac{1}{3}$ of a pie is less than $\frac{1}{4}$ of the same pie.
Is Sam correct? $\qquad$
Use the circles below to show why this is so.


Shade in $\frac{1}{3}$
of this circle
Shade in $\frac{1}{4}$
of this circle

Which of these is largest?
A. 1 kilogram
B. 1 centigram
C. 1 milligram
D. 1 gram

Item Number: J6

Elena worked 57 hours in March, 62 hours in April, and 59 hours in May. Which of these is the BEST estimate of the total number of hours she worked for the three months?
A. $50+50+50$
B. $55+55+55$
C. $60+60+60$
D. $65+65+65$

Item Number: J8

About how long is this picture of a pencil?

A. 5 cm
B. 10 cm
C. 20 cm
D. 30 cm

Item Number: K5

A thin wire 20 centimeters long is formed into a rectangle. If the width of this rectangle is 4 centimeters, what is its length?
A. 5 centimeters
B. 6 centimeters
C. 12 centimeters
D. 16 centimeters

Item Number: K7

The weight (mass) of a clothespin is 9.2 g . Which of these is the best estimate of the total weight (mass) of 1,000 clothespins?
A. 900 g
B. $9,000 \mathrm{~g}$
C. $90,000 \mathrm{~g}$
D. $900,000 \mathrm{~g}$

Four children measured the width of a room by counting how many paces it took them to cross it. The chart shows their measurements.

| Name | Number of <br> Paces |
| :--- | :---: |
| Stephen | 10 |
| Erlane | 8 |
| Ana | 9 |
| Carlos | 7 |

Who had the longest pace?
A. Stephen
B. Erlane
C. Ana
D. Carlos

Which of these would most likely be measured in milliliters?
A. The amount of liquid in a teaspoon
B. The weight (mass) of a pin
C. The amount of gasoline in a tank
D. The thickness of 10 sheets of paper

Item Number: M7

Here is a paper clip.


About how many lengths of the paper clip is the same as the length of this line?

Answer: $\qquad$

Item Number: S5

Mr. Brown goes for a walk and returns to where he started at 07:00. If his walk took 1 hour and 30 minutes, at what time did he start his walk?

Answer: $\qquad$

The triangle represents one tile in the shape of a triangle.


How many tiles will it take to cover the figure below?


Number of tiles: $\qquad$

Use the figure above to show how you worked out your answer.

How many millimeters are in a meter?

Answer: $\qquad$

Item Number: V5

The figure shows how Mary spent her time one day.


What percent of time altogether did she spend playing and doing homework?
A. $10 \%$
B. $15 \%$
C. $20 \%$
D. $25 \%$
E. $30 \%$

Item Number: J3

Kyle and Bob are playing a game. The object of the game is to get the highest total of points. This chart shows how many points they each scored.

| Scorecard |  |  |
| :--- | :---: | :--- |
| Player | Kyle | Bob |
| Round 1 | 125 | 100 |
| Round 2 | 125 | 125 |
| Round 3 | 150 | 100 |
| Round 4 | 50 | 150 |

Who won, and by how many points?
A. Bob won by 25 points.
B. Bob won by 100 points.
C. Kyle won by 25 points.
D. Kyle won by 175 points.

The graph shows 500 cedar trees and 150 hemlock trees.


How many trees does each $\hat{L}_{\mathrm{L}}$ represent?
Answer: $\qquad$

Item Number: L1

There is only one red marble in each of these bags.


Without looking in the bags, you are to pick a marble out of one of the bags. Which bag would give you the greatest chance of picking the red marble?
A. The bag with 10 marbles.
B. The bag with 100 marbles.
C. The bag with 1,000 marbles.
D. All bags would give the same chance.

Samantha drops a stone onto each of these targets. The stone has the best chance of landing on a shaded space in which target?
A.

B.
B.

C.

D.


Item Number: M1

A team is selling raffle tickets. The table shows how many tickets they have sold so far.

| Player's Name | Number of Tickets Sold |
| :---: | :---: |
| Carlos | 4 |
| Maria | 7 |
| Bill | 3 |
| Ted | 7 |
| Faye | 6 |
| Abby | 9 |

They need to sell 60 tickets altogether. How many more tickets must they sell?

Answer:

This table shows the ages of the girls and boys in a club.

| Age | Number of Girls | Number of Boys |
| :---: | :---: | :---: |
| 8 | 4 | 6 |
| 9 | 8 | 4 |
| 10 | 6 | 10 |

Use the information in the table to complete the graph for ages 9 and 10 .


Item Number: S1

The graph shows the number of cartons of milk sold each day of a week at a school.


How many cartons of milk did the school sell on Monday?
Answer: $\qquad$
How many cartons of milk did the school sell that week? Show your work.

Answer: $\qquad$

The graph shows the number of cartons of milk sold each day of a week at a school.


How many cartons of milk did the school sell on Monday?
Answer: $\qquad$

How many cartons of milk did the school sell that week? Show your work.

Answer: $\qquad$

This map shows city blocks with a delivery truck at one corner.


The driver of the delivery truck starts at corner X. He goes 3 blocks east and 2 blocks north to get to the school. On what corner is the school located?
A. A
B. B
C. C
D. D
E. E

Which of these is made with straight sides only?
A.

B.

C.

D.

E.


Here is a hexagon.


The hexagon is divided into six
A. triangles
B. squares
C. pentagons
D. rectangles

Item Number: J1

Which of these does NOT show a line of symmetry?


Item Number: J2

Here is a figure.


Which number is in the square and the circle but is NOT in the triangle?
A. 2
B. 3
C. 4
D. 5

Item Number: K1

Which rectangle is NOT divided into 4 equal parts?
A.

B.

C.

D.


Item Number: K8

This is a game board.


Which object is located at (2, D)?
A. The plane

B. The truck

$$
\sqrt{6}
$$

C. The bus
[xola
D. The boat


This picture shows a cube with one edge marked. How many edges does the cube have altogether?

A. 6
B. 8
C. 12
D. 24

On this grid, find the dot with the circle around it. We can describe where this dot is by saying it is at First Number 1, Second Number 3


Now find the dot with the triangle around it. Describe where the dot is on the grid in the same way. Fill in the numbers we would use:

First Number $\qquad$ Second Number $\qquad$

Craig folded a piece of paper in half and cut out a shape.


Draw a picture to show what the cut-out shape will look like when it is opened up and flattened out.

Tanya has read the first 78 pages in a book that is 130 pages long. Which number sentence could Tanya use to find the number of pages she must read to finish the book?
A. $130+78=$
B. $\square-78=130$
C. $130 \div 78=\square$
D. $130-78=$

Item Number: 17

What do you have to do to each number in Column A to get the number next to it in Column B?

| Column A | Column B |
| :---: | :---: |
| 10 | 2 |
| 15 | 3 |
| 25 | 5 |
| 50 | 10 |

A. Add 8 to the number in Column A.
B. Subtract 8 from the number in Column A.
C. Multiply the number in Column A by 5.
D. Divide the number in Column A by 5.

Which pair of numbers follows the rule "Multiply the first number by 5 to get the second number"?
A. $\quad 15 \rightarrow 3$
B. $\quad 6 \rightarrow 11$
C. $\quad 11 \rightarrow 6$
D. $\quad 3 \rightarrow 15$

Here is the beginning of a pattern of tiles.


Figure 1


Figure 2


Figure 3

If the pattern continues, how many tiles will be in Figure 6 ?
A. 12
B. 15
C. 18
D. 21

These shapes are arranged in a pattern.

## $O \triangle O O \Delta \triangle O O O \Delta \Delta \triangle$

Which set of shapes is arranged in the same pattern?
A.

B.

D. $\square \square \star \star \square \star \square \square \star \star \square \star$

Henry is older than Bill, and Bill is older than Peter. Which statement must be true?
A. Henry is older than Peter.
B. Henry is younger than Peter.
C. Henry is the same age as Peter.
D. We cannot tell who is oldest from the information.

Here is a number sentence.
$4 \times \square<17$
Which number could go in the $\square$ to make the sentence true?
A. 4
B. 5
C. 12
D. 13

Item Number: M9

These numbers are part of a pattern.
$50,46,42,38,34, \ldots$
What do you have to do to get the next number?
Answer: $\qquad$

Item Number: U4

## $\square$ represents the number of magazines that Lina reads each week.

Which of these represents the total number of magazines that Lina reads in 6 weeks?
(A) $6+$
(B) $6 \times$
(C) $\square+6$
(D) $(\square+\square) \times 6$

Rob had 50 apples. He sold some and then had 20 left.
Which of these is a number sentence that shows this?
(A)$-20=50$
(B) $20-$ $\square=50$
(C) $\square-50=20$
(D) $50-\square=20$


Here is a number pattern.
100, 1, 99, 2, 98, $\square, \quad \square, \quad \square$
What three numbers should go in the boxes?
(A) $3,97,4$
(B) $4,97,5$
(C) $97,3,96$
(D) $97,4,96$

| 4 | 11 | 6 |
| :---: | :---: | :---: |
| 9 |  | 5 |
| 8 | 3 | 10 |

The rule for the table is that numbers in each row and column must add up to the same number. What number goes in the center of the table?
(A) 1
(B) 2
(C) 7
(D) 12

The daily start times for showing a movie are listed below:

| Show | Start Time |
| :---: | :---: |
| 1st | 2:00 p.m. |
| 2nd | 3:30 p.m. |
| 3rd | 5:00 p.m. |
| 4th | $?$ |

If this pattern continues, what is the start time for the 4th show?
(A) $5: 30 \mathrm{p} . \mathrm{m}$.
(B) $6: 00 \mathrm{p} . \mathrm{m}$.
(C) $6: 30 \mathrm{p} . \mathrm{m}$.
(D) 7:00 p.m.

A number machine takes a number and operates on it.
When the Input Number is 5 , the Output Number is 9, as shown below.


When the Input Number is 7, which of these is the Output Number?
(A) 11
(B) 13
(C) 14
(D) 25

The graph shows the heights of four girls.


The names are missing from the graph. Debbie is the tallest. Amy is the shortest. Dawn is taller than Sarah. How tall is Sarah?
(A) 75 cm
(B) 100 cm
(C) 125 cm
(D) 150 cm

Central School had a bottle collection. Children in each class brought empty bottles to school. The principal made a bar graph of the number of bottles from five classes.


Which class collected 45 bottles?
(A) Miss Barber's class
(B) Mr. Chyn's class
(C) Mrs. Friedman's class
(D) Mr. Mack's class

Central School had a bottle collection. Children in each class brought empty bottles to school. The principal made a bar graph of the number of bottles from five classes.


Which two classes collected exactly 80 bottles?
(A) Miss Barber's and Mrs. Friedman's classes
(B) Miss Barber's and Mr. Mack's classes
(C) Mrs. Friedman's and Miss Gonzalez's classes
(D) Miss Gonzalez's and Mr. Mack's classes

This chart shows temperature readings made at different times on four days.

| TEMPERATURES $^{\|c\|}$ |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
|  | 6 a.m. | 9 a.m. | Noon | 3 p.m. | 8 p.m. |
| Monday | $15^{\circ}$ | $17^{\circ}$ | $20^{\circ}$ | $21^{\circ}$ | $19^{\circ}$ |
| Tuesday | $15^{\circ}$ | $15^{\circ}$ | $15^{\circ}$ | $10^{\circ}$ | $9^{\circ}$ |
| Wednesday | $8^{\circ}$ | $10^{\circ}$ | $14^{\circ}$ | $13^{\circ}$ | $15^{\circ}$ |
| Thursday | $8^{\circ}$ | $11^{\circ}$ | $14^{\circ}$ | $17^{\circ}$ | $20^{\circ}$ |

When was the highest temperature recorded?
(A) Noon on Monday
(B) 3 p.m. on Monday
(C) Noon on Tuesday
(D) 3 p.m. on Wednesday

In a class of 30 students, 10 have black hair, 15 have blonde hair, and the rest have brown hair. Complete the graph below to show the number of students with brown hair.

Color of Hair


A store owner decided to check how many pens, pencils, erasers, and rulers were sold on the day school opened. He made the tally chart below.

| Pens |  |  | Pencils |  |  | Erasers |  |  | Rulers |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | H | 为 |  | H |  |  | W | II |  | H | H |
| H | 1 |  | 为 | W | 1 |  |  |  |  | IIII |  |

How many more pencils than rulers were sold?

Answer: $\qquad$


| Favorite <br> Ice Cream | Number of <br> Students |
| :--- | :--- |
| Butterscotch | IIII |
| Chocolate | HH HH |
| Strawberry | HH IIII |
| Vanilla | HH II |

A teacher asked 30 students in her class the flavor of their favorite ice cream. The table above shows how the teacher recorded the students' responses.
In the bar graph below, which ice cream flavor corresponds to the bar that is labeled X ?

(A) butterscotch
(B) chocolate
(C) strawberry
(D) vanilla

Figures that are the same size and shape are called congruent figures.


Which two figures are congruent?
(A) 1 and 2
(B) 1 and 3
(C) 1 and 4
(D) 3 and 4


Two of the four triangles in the figure above are the same shape but different sizes. Shade in those two triangles.

On the grid, draw a line parallel to line $L$.


This figure will be turned to a different position.


Which of these could be the figure after it is turned?
(A)
(B)

(C)

(D)


Here is a cone. Part of its surface is flat and part of its surface is curved.


Which of these solids also has both a flat surface and a curved surface?
(A)

(B)

(C)

(D)


All of the pupils in a class cut out paper shapes. The teacher picked one out and said, "This shape is a triangle." Which of these statements MUST be correct?
(A) The shape has three sides.
(B) The shape has a right angle.
(C) The shape has equal sides.
(D) The shape has equal angles.

In the picture there are a number of geometric shapes, like circles, squares, rectangles, and triangles. For example, the sun looks like a circle.
Draw lines to three other different objects in the picture and write what shapes they look like.


Item Number: M031269
A. Use 2 of the triangle tiles to make one large black triangle. Then show what you did with your tiles by shading in your triangle below.

## Shade in Your <br> Triangle Here


B. Use all 4 triangle tiles to make a black square. Then show what you did with your tiles by shading in your square below.

## Shade in Your <br> Square Here


C. What fraction of the figure is shaded in part B above?

Answer: $\qquad$

Item Number: M031347A
A. Use 2 of the triangle tiles to make one large black triangle. Then show what you did with your tiles by shading in your triangle below.

## Shade in Your <br> Triangle Here


B. Use all 4 triangle tiles to make a black square. Then show what you did with your tiles by shading in your square below.

## Shade in Your <br> Square Here


C. What fraction of the figure is shaded in part B above?

Answer: $\qquad$
A. Use 2 of the triangle tiles to make one large black triangle. Then show what you did with your tiles by shading in your triangle below.

## Shade in Your <br> Triangle Here


B. Use all 4 triangle tiles to make a black square. Then show what you did with your tiles by shading in your square below.

## Shade in Your <br> Square Here


C. What fraction of the figure is shaded in part B above?

Answer: $\qquad$

Item Number: M031347C
A. Draw 1 straight line on this rectangle to divide it into 2 triangles.

B. Draw 1 straight line on this rectangle to divide it into 2 rectangles.

C. Draw 2 straight lines on this rectangle to divide it into 1 rectangle and 2 triangles.

A. Draw 1 straight line on this rectangle to divide it into 2 triangles.

B. Draw 1 straight line on this rectangle to divide it into 2 rectangles.

C. Draw 2 straight lines on this rectangle to divide it into 1 rectangle and 2 triangles.

A. Draw 1 straight line on this rectangle to divide it into 2 triangles.

B. Draw 1 straight line on this rectangle to divide it into 2 rectangles.

C. Draw 2 straight lines on this rectangle to divide it into 1 rectangle and 2 triangles.


Which of these could be the weight (mass) of an adult?
(A) 1 kg
(B) 6 kg
(C) 60 kg
(D) 600 kg

What units would be best to use to measure the weight (mass) of an egg?
(A) centimeters
(B) milliliters
(C) grams
(D) kilograms

Which of these could equal 150 milliliters?
(A) The amount of water in a cup
(B) The length of a kitten
(C) The weight of an egg
(D) The area of a coin

Which of these figures has the largest area?
(A)

(B)

(C)


Simon wants to watch a film that is between $1 \frac{1}{2}$ and 2 hours long.
Which of the following films should he choose?
(A) a 59-minute film
(B) a 102 -minute film
(C) a 121-minute film
(D) a 150-minute film

When Tracy left for school, the temperature was minus 3 degrees.


At recess, the temperature was 5 degrees.


How many degrees did the temperature rise?

Item Number: M011013

|  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | $A$ |  |  | $B$ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |

Draw a triangle in the grid so that the line $A B$ is the base of the triangle and the two new sides are the same length as each other.

One centimeter on the map represents 8 kilometers on the land.


About how far apart are Oxford and Smithville on the land?
(A) 4 km
(B) 16 km
(C) 35 km
(D) 50 km


The squares in the grid above have areas of 1 square centimeter. Draw lines to complete the figure so that it has an area of 13 square centimeters.

Here is a calendar for December.

| DECEMBER |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{S}$ | $\mathbf{M}$ | $\mathbf{T}$ | $\mathbf{W}$ | $\mathbf{T}$ | $\mathbf{F}$ | $\mathbf{S}$ |  |
|  |  |  | 1 | 2 | 3 | 4 |  |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |  |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |  |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |  |
| 26 | 27 | 28 | 29 | 30 | 31 |  |  |

Mary's birthday is on Thursday, December 2. She is going on a trip exactly 3 weeks later. On what date will she go on the trip?
(A) December 16th
(B) December 21st
(C) December 23rd
(D) December 30th

Here is a rectangle with length 6 centimeters and width 4 centimeters. The distance right around its shape is called its perimeter.


Which of these gives the perimeter of the rectangle in centimeters?
(A) $6+4$
(B) $6 \times 4$
(C) $6 \times 4 \times 2$
(D) $6+4+6+4$

The distance from one town to another is 180 km . If Betty has to drive the distance in 3 hours, what must her average speed be in kilometers per hour?
(A) $180 \times 3$
(B) $180+3$
(C) $180 \div 3$
(D) 180-3

George practiced soccer six days a week.
For 3 of the days he practiced for 45 minutes each day.
For 3 of the days he practiced for 20 minutes each day.
In hours and minutes, what is the total amount of time George practiced on these six days?
(A) 2 hours 20 minutes
(B) 2 hours 55 minutes
(C) 3 hours 5 minutes
(D) 3 hours 15 minutes

Item Number: M031178

Jasmine made a stack of cubes of the same size. The stack had 5 layers and each layer had 10 cubes. What is the volume of the stack?
(A) 5 cubes
(B) 15 cubes
(C) 30 cubes
(D) 50 cubes

What is the sum of 2.5 and 3.8 ?
(A) 5.3
(B) 6.3
(C) 6.4
(D) 9.5


Which of these means $\frac{7}{10}$ ?
(A) 70
(B) 7
(C) 0.7
(D) 0.07
A. WITHOUT using any triangle tiles, place 4 tiles so that $\frac{1}{2}$ of a square shape is black. Then shade in the square below to show what you did with your tiles.

## Shade in Here


B. Place 8 tiles so that $\frac{5}{8}$ of the rectangle shape is black. Then shade in the rectangle below to show what you did with your tiles.

## Shade in Here


A. WITHOUT using any triangle tiles, place 4 tiles so that $\frac{1}{2}$ of a square shape is black. Then shade in the square below to show what you did with your tiles.

## Shade in Here


B. Place 8 tiles so that $\frac{5}{8}$ of the rectangle shape is black. Then shade in the rectangle below to show what you did with your tiles.

## Shade in Here



Janis, Maija, and their mother were eating a cake. Janis ate $\frac{1}{2}$ of the cake.
Maija ate $\frac{1}{4}$ of the cake. Their mother ate $\frac{1}{4}$ of the cake.
How much of the cake is left?
(A) $\frac{3}{4}$
(B) $\frac{1}{2}$
(C) $\frac{1}{4}$
(D) None

There are 600 balls in a box, and $\frac{1}{3}$ of the balls are red.
How many red balls are in the box?

Answer: $\qquad$ red balls

A cake was cut into 8 pieces of equal size. John ate 3 pieces of the cake. What fraction of the cake did John eat?
(A) $\frac{1}{8}$
(B) $\frac{3}{8}$
(C) $\frac{3}{5}$
(D) $\frac{8}{3}$


In this diagram, 2 out of every 3 squares are shaded.


Which diagram has 3 out of every 4 squares shaded?
(A)

(C)

(B)

(D)

|  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |



Item Number: M012044

For every soft drink bottle that Fred collected, Maria collected 3.
Fred collected a total of 9 soft drink bottles. How many did Maria collect?
(A) 3
(B) 12
(C) 13
(D) 27

Which number would be rounded to 600 when rounded to the nearest hundred?
(A) 62
(B) 160
(C) 546
(D) 586
(E) 660

What number equals 3 ones +5 tens +4 hundreds +60 thousands?
(A) 6,453
(B) 60,453
(C) 64,530
(D) 354,060
(E) 604,530

Which of these is a name for 9,740 ?
(A) Nine thousand seventy-four
(B) Nine thousand seven hundred forty
(C) Nine thousand seventy-four hundred
(D) Nine hundred seventy-four thousand

Which number is equal to eight tens plus nine tens?
(A) 17
(B) 170
(C) 1,700
(D) 17,000


Item Number: M031305


Item Number: M031306


Item Number: M031130

Juanita wanted to use her calculator to add 1,379 and 243. She entered $1,279+243$ by mistake. Which of these could she do to correct the mistake?
(A) Add 100
(B) Add 1
(C) Subtract 1
(D) Subtract 100

In Toshi's class there are twice as many girls as boys. There are 8 boys in the class. What is the total number of boys and girls in the class?
(A) 12
(B) 16
(C) 20
(D) 24

There are 9 boxes of pencils. Each box has 125 pencils. What is the total number of pencils?
(A) 1,025
(B) 1,100
(C) 1,125
(D) 1,220
(E) 1,225

It takes Chris 4 minutes to wash a window. He wants to know how many minutes it will take him to wash 8 windows at this rate. He should
(A) multiply $4 \times 8$
(B) divide 8 by 4
(C) subtract 4 from 8
(D) add 8 and 4

Mark's garden has 84 rows of cabbages. There are 57 cabbages in each row. Which of these gives the BEST way to estimate how many cabbages there are altogether?
(A) $100 \times 50=5,000$
(B) $90 \times 60=5,400$
(C) $80 \times 60=4,800$
(D) $80 \times 50=4,000$

Each student needs 8 notebooks for school. How many notebooks are needed for 115 students?

Answer: $\qquad$

A piece of rope 204 cm long is cut into 4 equal pieces. Which of these gives the length of each piece in centimeters?
(A) $204+4$
(B) $204 \times 4$
(C) 204-4
(D) $204 \div 4$

Using the number tiles, Joan and Herbert played a new game.
They placed the numbers to make the largest answer.
A. Use the tiles 1,5 , and 9 . Write the numbers on the tiles in the boxes below to make the largest answer when you add.

B. Use the tiles 2,3 , and 7 . Write the numbers on the tiles in the boxes below to make the largest answer when you subtract.

C. Use the tiles 1,4 , and 5 . Write the numbers on the tiles in the boxes below to make the largest answer when you multiply.


Using the number tiles, Joan and Herbert played a new game.
They placed the numbers to make the largest answer.
A. Use the tiles 1,5 , and 9 . Write the numbers on the tiles in the boxes below to make the largest answer when you add.

B. Use the tiles 2,3 , and 7 . Write the numbers on the tiles in the boxes below to make the largest answer when you subtract.

C. Use the tiles 1,4 , and 5 . Write the numbers on the tiles in the boxes below to make the largest answer when you multiply.


Using the number tiles, Joan and Herbert played a new game.
They placed the numbers to make the largest answer.
A. Use the tiles 1,5 , and 9 . Write the numbers on the tiles in the boxes below to make the largest answer when you add.

B. Use the tiles 2,3 , and 7 . Write the numbers on the tiles in the boxes below to make the largest answer when you subtract.

C. Use the tiles 1,4 , and 5 . Write the numbers on the tiles in the boxes below to make the largest answer when you multiply.


Each small square ( $\square$ ) is equal to 1 . There are 10 small squares in each strip. There are 100 small squares in each large square.


What number is shown?
(A) 16
(B) 358
(C) 538
(D) 835

Which of these has the same value as 342 ?
(A) $3,000+400+2$
(B) $300+40+2$
(C) $30+4+2$
(D) $3+4+2$

Which digit is in the hundreds place in 2,345 ?
(A) 2
(B) 3
(C) 4
(D) 5

Which number sentence is true?
(A) $968<698$
(B) $968<689$
(C) $968>689$
(D) $968=689$


## Get to 20 Number Game

Two children, Joan and Herbert, are learning to play a game "Get to 20." Here are the rules for the game.

## GET TO 20

 RULESPick Tiles: Each player draws three number tiles.
Add Tiles: Each player places the three tiles to make an addition problem with the sum total closest to 20 .

For example, here are four ways a player who draws 1,4 , and 5 could place the tiles:

$$
\begin{aligned}
& \begin{array}{r|r|}
\hline 5 & 1 \\
\hline+\quad 4 \\
\hline & 55 \\
\hline
\end{array} \\
& \text { or } \quad \begin{array}{r|r|}
\hline 4 & 5 \\
\hline+ & 1 \\
\hline & 46
\end{array} \\
& \text { Or } \\
& \text { or } \\
& \begin{array}{r}
1 \\
+\quad 5 \\
+\quad 4 \\
\hline \begin{array}{|r}
10
\end{array}
\end{array}
\end{aligned}
$$

This player should choose to show the addition problem $\begin{gathered}15 \\ \frac{+4}{19}\end{gathered}$ because 19 is the total closest to 20.

Joan and Herbert played the game "Get to 20."
Joan picked 2,7 , and 9 . Herbert picked 1,3 , and 6 .
A. What is the addition problem that Joan could make with her number tiles that gives a total closest to 20 ? Be sure to include the total.
B. What is the addition problem that Herbert could make with his number tiles that gives a total closest to 20 ? Be sure to include the total.
C. Herbert said, "If I pick 1,4 , and 6 , I can make 20 two different ways."

Show two ways Herbert could make 20 with 1 , 4, and 6 .

First way:

Second way:

Item Number: M031344A

## Get to 20 Number Game

Two children, Joan and Herbert, are learning to play a game "Get to 20 ." Here are the rules for the game.

## GET TO 20

 RULESPick Tiles: Each player draws three number tiles.
Add Tiles: Each player places the three tiles to make an addition problem with the sum total closest to 20 .

For example, here are four ways a player who draws 1,4 , and 5 could place the tiles:

$$
\begin{aligned}
& \begin{array}{r|r|}
\hline 5 & 1 \\
\hline+\quad 4 \\
\hline & 55 \\
\hline
\end{array} \\
& \text { or } \\
& \text { or } \\
& \text { Or } \\
& \begin{array}{r} 
\\
+\quad 1 \\
+\quad 5 \\
+\quad 4 \\
\hline 10
\end{array}
\end{aligned}
$$

This player should choose to show the addition problem $\begin{gathered}15 \\ \frac{+4}{19}\end{gathered}$ because 19 is the total closest to 20.

Joan and Herbert played the game "Get to 20."
Joan picked 2,7 , and 9 . Herbert picked 1,3 , and 6 .
A. What is the addition problem that Joan could make with her number tiles that gives a total closest to 20 ? Be sure to include the total.
B. What is the addition problem that Herbert could make with his number tiles that gives a total closest to 20 ? Be sure to include the total.
C. Herbert said, "If I pick 1, 4, and 6, I can make 20 two different ways."

Show two ways Herbert could make 20 with 1 , 4, and 6 .

First way:

Second way:

## Get to 20 Number Game

Two children, Joan and Herbert, are learning to play a game "Get to 20." Here are the rules for the game.

## GET TO 20

 RULESPick Tiles: Each player draws three number tiles.
Add Tiles: Each player places the three tiles to make an addition problem with the sum total closest to 20 .

For example, here are four ways a player who draws 1,4 , and 5 could place the tiles:

$$
\begin{aligned}
& \begin{array}{r|r|}
\hline 5 & 1 \\
\hline+\quad 4 \\
\hline & 55 \\
\hline
\end{array} \\
& \text { or } \\
& \text { or } \\
& \text { Or } \\
& \begin{array}{r} 
\\
+\quad 1 \\
+\quad 5 \\
+\quad 4 \\
\hline 10
\end{array}
\end{aligned}
$$

This player should choose to show the addition problem $\begin{gathered}15 \\ \frac{+4}{19}\end{gathered}$ because 19 is the total closest to 20.

Joan and Herbert played the game "Get to 20."
Joan picked 2,7 , and 9 . Herbert picked 1,3 , and 6 .
A. What is the addition problem that Joan could make with her number tiles that gives a total closest to 20 ? Be sure to include the total.
B. What is the addition problem that Herbert could make with his number tiles that gives a total closest to 20 ? Be sure to include the total.
C. Herbert said, "If I pick 1, 4, and 6, I can make 20 two different ways."

Show two ways Herbert could make 20 with 1 , 4, and 6 .

First way:

Second way:

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