

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Solving Routine Problems

Notebooks for 115 students

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

Answer: \_\_\_\_\_

### Overall Percent Correct

Singapore	86	▲
Chinese Taipei	85	▲
Hong Kong, SAR	80	▲
Russian Federation	76	▲
Latvia	72	▲
Hungary	69	▲
Cyprus	68	▲
Lithuania	67	▲
Japan	65	▲
Moldova, Republic of	65	▲
Belgium (Flemish)	63	▲
Armenia	58	▲
Netherlands	55	○
Italy	54	○
<b>International average</b>	<b>52</b>	
United States	51	○
Slovenia	44	▼
Iran, Islamic Republic of	38	▼
Tunisia	35	▼
England	30	▼
Australia	27	▼
New Zealand	27	▼
Philippines	26	▼
Scotland	24	▼
Morocco	17	▼
Norway	12	▼

### Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Item Number: M031011

## SCORING

### Correct Response

- 920

### Incorrect Response

- Incorrect (including crossed out/erased, stray marks, illegible, or off task)

## Notebooks for 115 students (continued)

Item Number: M031011

## Student Responses

## Correct Response:

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

Answer: 920

$$\begin{array}{r} 14 \\ 115 \\ \times 8 \\ \hline 920 \end{array} \text{ notebooks}$$

## Incorrect Response:

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

Answer: 2070 notebooks

$$\begin{array}{r} 115 \\ \times 18 \\ \hline 920 \\ + 1150 \\ \hline 2070 \end{array}$$

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Solving Routine Problems

A 204 cm rope cut into 4/calculation

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)  $204 \div 4$

### Overall Percent Correct

Hong Kong, SAR	94	▲
Singapore	94	▲
Chinese Taipei	90	▲
Latvia	90	▲
Belgium (Flemish)	90	▲
Lithuania	88	▲
Netherlands	88	▲
Japan	87	▲
Hungary	85	▲
Russian Federation	84	▲
Armenia	77	▲
England	76	▲
<b>International average</b>	<b>73</b>	
Italy	71	○
Moldova, Republic of	70	○
United States	70	○
Slovenia	69	○
Australia	66	▼
Scotland	65	▼
Cyprus	64	▼
Norway	64	▼
New Zealand	61	▼
Iran, Islamic Republic of	55	▼
Tunisia	46	▼
Morocco	40	▼
Philippines	29	▼

### Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Item Number: M031310

Correct Response:

D

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Solving Routine Problems

Number tiles: largest number (+)

Using the number tiles, Joan and Herbert played a new game. They placed the numbers to make the largest answer.

A. Use the tiles  $\boxed{1}$ ,  $\boxed{5}$ , and  $\boxed{9}$ . Write the numbers on the tiles in the boxes below to make the largest answer when you add.

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

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

Overall Percent Correct		
Japan	74	▲
Singapore	71	▲
Hong Kong, SAR	69	▲
England	68	▲
Hungary	65	▲
Netherlands	65	▲
Chinese Taipei	64	▲
Cyprus	63	▲
Latvia	60	▲
Lithuania	60	▲
Scotland	60	▲
Belgium (Flemish)	57	○
United States	56	○
Australia	56	○
Iran, Islamic Republic of	54	○
New Zealand	53	○
<b>International average</b>	<b>52</b>	
Russian Federation	50	○
Norway	47	○
Italy	46	▼
Slovenia	45	▼
Morocco	35	▼
Moldova, Republic of	33	▼
Armenia	24	▼
Tunisia	23	▼
Philippines	11	▼

Country average vs. International average:	
Higher	▲
Not different	○
Lower	▼

Number tiles: largest number (+) (continued)

Item Number: M031345A

**SCORING**

**Correct Response**

- $91 + 5$  or  $95 + 1$

**Incorrect Response**

- Any other arrangement of digits 1, 5, and 9
- Other incorrect (including crossed out/erased, stray marks, illegible, or off task)

## Number tiles: largest number (+) (continued)

Item Number: M031345A

## Student Responses

## Correct Response:

Using the number tiles, Joan and Herbert played a new game. They placed the numbers to make the largest answer.

A. Use the tiles  $\boxed{1}$ ,  $\boxed{5}$ , and  $\boxed{9}$ . Write the numbers on the tiles in the boxes below to make the largest answer when you add.

$$\begin{array}{r}
 \boxed{9} \boxed{5} \\
 + \quad \quad \boxed{1} \\
 \hline
 96
 \end{array}$$

## Incorrect Response:

Using the number tiles, Joan and Herbert played a new game. They placed the numbers to make the largest answer.

A. Use the tiles  $\boxed{1}$ ,  $\boxed{5}$ , and  $\boxed{9}$ . Write the numbers on the tiles in the boxes below to make the largest answer when you add.

$$\begin{array}{r}
 \boxed{1} \boxed{9} \\
 + \quad \quad \boxed{5} \\
 \hline
 24
 \end{array}$$

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Solving Routine Problems

Number tiles: largest number (-)

Using the number tiles, Joan and Herbert played a new game. They placed the numbers to make the largest answer.

A. Use the tiles  $\boxed{1}$ ,  $\boxed{5}$ , and  $\boxed{9}$ . Write the numbers on the tiles in the boxes below to make the largest answer when you add.

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

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

Overall Percent Correct

Japan	73	▲
Singapore	69	▲
Hong Kong, SAR	67	▲
Hungary	64	▲
Netherlands	64	▲
Chinese Taipei	63	▲
Latvia	60	▲
England	59	▲
Lithuania	57	▲
Belgium (Flemish)	56	▲
Cyprus	55	▲
United States	53	○
Russian Federation	52	○
Australia	52	○
Scotland	52	○
New Zealand	51	○
<b>International average</b>	<b>50</b>	
Iran, Islamic Republic of	49	○
Norway	47	○
Italy	46	○
Slovenia	41	▼
Moldova, Republic of	39	▼
Armenia	23	▼
Morocco	21	▼
Tunisia	19	▼
Philippines	9	▼

Country average vs. International average:	
Higher	▲
Not different	○
Lower	▼

Number tiles: largest number (-) (continued)

Item Number: M031345B

**SCORING**

**Correct Response**

- 73 - 2

**Incorrect Response**

- 72 - 3
- Any other arrangement of the digits 2, 3, and 7
- Other incorrect (including crossed out/erased, stray marks, illegible, or off task)



## Number tiles: largest number (-) (continued)

Item Number: M031345B

## Student Responses

## Correct Response:

- B. Use the tiles  $\boxed{2}$ ,  $\boxed{3}$ , and  $\boxed{7}$ . Write the numbers on the tiles in the boxes below to make the largest answer when you subtract.

$$\begin{array}{r} \boxed{7} \boxed{3} \\ - \quad \quad \boxed{2} \\ \hline 7 \quad 1 \end{array}$$

## Incorrect Response:

- B. Use the tiles  $\boxed{2}$ ,  $\boxed{3}$ , and  $\boxed{7}$ . Write the numbers on the tiles in the boxes below to make the largest answer when you subtract.

$$\begin{array}{r} \boxed{3} \boxed{7} \\ - \quad \quad \boxed{2} \\ \hline 35 \end{array}$$

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Solving Routine Problems

## Number tiles: largest number (X)

Using the number tiles, Joan and Herbert played a new game. They placed the numbers to make the largest answer.

- A. Use the tiles  $\boxed{1}$ ,  $\boxed{5}$ , and  $\boxed{9}$ . Write the numbers on the tiles in the boxes below to make the largest answer when you add.

$$\begin{array}{r}
 \boxed{\phantom{00}} \boxed{\phantom{00}} \\
 + \phantom{00} \boxed{\phantom{00}} \\
 \hline
 \end{array}$$

- B. Use the tiles  $\boxed{2}$ ,  $\boxed{3}$ , and  $\boxed{7}$ . Write the numbers on the tiles in the boxes below to make the largest answer when you subtract.

$$\begin{array}{r}
 \boxed{\phantom{00}} \boxed{\phantom{00}} \\
 - \phantom{00} \boxed{\phantom{00}} \\
 \hline
 \end{array}$$

- C. Use the tiles  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{5}$ . Write the numbers on the tiles in the boxes below to make the largest answer when you multiply.

$$\begin{array}{r}
 \boxed{\phantom{00}} \boxed{\phantom{00}} \\
 \times \phantom{00} \boxed{\phantom{00}} \\
 \hline
 \end{array}$$

## Overall Percent Correct

Japan	35	▲
Singapore	26	▲
Hong Kong, SAR	24	▲
Cyprus	23	▲
Chinese Taipei	22	▲
Hungary	22	▲
England	19	○
Tunisia	18	○
Belgium (Flemish)	18	○
Latvia	17	○
Morocco	17	○
Australia	16	○
Lithuania	16	○

**International average 16**

Italy	15	○
Scotland	15	○
Netherlands	14	○
Norway	14	○
United States	14	▼
Moldova, Republic of	13	○
New Zealand	13	○
Iran, Islamic Republic of	12	▼
Russian Federation	12	▼
Armenia	7	▼
Slovenia	5	▼
Philippines	3	▼

**Country average vs.  
International average:**

Higher	▲
Not different	○
Lower	▼

Number tiles: largest number (X) (continued)

Item Number: M031345C

**SCORING**

**Correct Response**

- $41 \times 5$

**Incorrect Response**

- $51 \times 4$
- Any other arrangement of the digits 1, 4, and 5
- Other incorrect (including crossed out/erased, stray marks, illegible, or off task)

## Number tiles: largest number (X) (continued)

Item Number: M031345C

## Student Responses

## Correct Response:

- 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.

$$\begin{array}{r}
 \boxed{4} \boxed{1} \\
 \times \quad \boxed{5} \\
 \hline
 20 \ 5
 \end{array}$$

## Incorrect Response:

- 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.

$$\begin{array}{r}
 \boxed{5} \boxed{4} \\
 \times \quad \boxed{1} \\
 \hline
 5 \ 4
 \end{array}$$

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Using Concepts

Number represented by squares

Each small 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

Item Number: M011004

Overall Percent Correct

Chinese Taipei	98	▲
Belgium (Flemish)	92	▲
Japan	89	▲
Singapore	89	▲
United States	89	▲
Australia	86	▲
Netherlands	86	▲
Hong Kong, SAR	85	▲
England	84	▲
New Zealand	82	▲
Lithuania	80	▲
Scotland	80	▲
Latvia	79	▲
Cyprus	78	○
Moldova, Republic of	78	○
Italy	77	○
Norway	76	○
Slovenia	75	○
<b>International average</b>	<b>75</b>	
Russian Federation	74	○
Hungary	68	▼
Philippines	57	▼
Iran, Islamic Republic of	56	▼
Armenia	39	▼
Morocco	38	▼
Tunisia	34	▼

Country average vs. International average:	
Higher	▲
Not different	○
Lower	▼

Correct Response:	<b>B</b>
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Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Using Concepts

Which has same value

Which of these has the same value as 342?

(A)  $3,000 + 400 + 2$

(B)  $300 + 40 + 2$

(C)  $30 + 4 + 2$

(D)  $3 + 4 + 2$

Item Number: M011007

### Overall Percent Correct

Chinese Taipei	98	▲
Belgium (Flemish)	98	▲
Hong Kong, SAR	97	▲
Japan	97	▲
Latvia	97	▲
Netherlands	97	▲
Singapore	97	▲
Hungary	96	▲
Russian Federation	96	▲
Lithuania	94	▲
United States	92	▲
England	91	▲
Cyprus	89	○
Italy	89	○
Moldova, Republic of	89	○
Slovenia	89	○
Norway	88	○
Australia	87	○
Armenia	87	○
<b>International average</b>	<b>87</b>	
New Zealand	82	▼
Scotland	79	▼
Morocco	64	▼
Tunisia	64	▼
Philippines	62	▼
Iran, Islamic Republic of	56	▼

### Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Correct Response:

**B**

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Using Concepts

## Digit in hundreds place

Which digit is in the hundreds place in 2,345?

- Ⓐ 2  
 Ⓑ 3  
 Ⓒ 4  
 Ⓓ 5

## Overall Percent Correct

Chinese Taipei	96	▲
Singapore	95	▲
Japan	94	▲
United States	92	▲
Netherlands	91	▲
Belgium (Flemish)	90	▲
England	87	▲
Australia	83	▲
Hungary	80	○
Lithuania	80	○
Moldova, Republic of	80	○
Latvia	79	○
Scotland	79	○
Cyprus	78	○
Italy	77	○
<b>International average</b>	<b>77</b>	
Russian Federation	75	○
Iran, Islamic Republic of	73	○
New Zealand	73	▼
Hong Kong, SAR	70	▼
Norway	69	▼
Armenia	59	▼
Philippines	59	▼
Morocco	57	▼
Slovenia	54	▼
Tunisia	44	▼

Country average vs.  
International average:

Higher	▲
Not different	○
Lower	▼

Item Number: M011018

Correct Response:

**B**

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Using Concepts

Which is true

Which number sentence is true?

(A)  $968 < 698$

(B)  $968 < 689$

(C)  $968 > 689$

(D)  $968 = 689$

### Overall Percent Correct

Chinese Taipei	90	▲
Singapore	84	▲
Russian Federation	82	▲
Belgium (Flemish)	81	▲
Hong Kong, SAR	80	▲
Hungary	80	▲
United States	80	▲
Japan	79	▲
Moldova, Republic of	78	▲
Slovenia	78	▲
Latvia	76	▲
Lithuania	76	▲
Italy	75	▲
Armenia	71	▲
Cyprus	68	○
<b>International average</b>	<b>66</b>	
Norway	65	○
New Zealand	62	▼
England	59	▼
Philippines	54	▼
Netherlands	53	▼
Iran, Islamic Republic of	47	▼
Australia	45	▼
Morocco	42	▼
Tunisia	28	▼
Scotland	28	▼

### Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

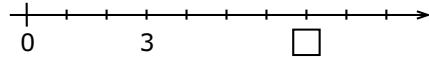
Item Number: M011026

Correct Response:	C
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Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Using Concepts

Number going in the number line box



On the number line above, what number goes in the box?

Number in  = \_\_\_\_\_

### Overall Percent Correct

Japan	88	▲
Belgium (Flemish)	88	▲
Singapore	87	▲
Hungary	86	▲
Chinese Taipei	85	▲
Netherlands	85	▲
England	80	▲
Latvia	76	▲
Italy	74	▲
Hong Kong, SAR	72	▲
Lithuania	72	▲
Slovenia	71	▲
New Zealand	66	○
United States	66	○
<b>International average</b>	<b>66</b>	
Australia	64	○
Cyprus	60	▼
Russian Federation	60	▼
Scotland	60	▼
Moldova, Republic of	56	▼
Iran, Islamic Republic of	55	▼
Norway	54	▼
Armenia	45	▼
Philippines	36	▼
Morocco	30	▼
Tunisia	28	▼

### Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Item Number: M031162

### SCORING

#### Correct Response

- 7

#### Incorrect Response

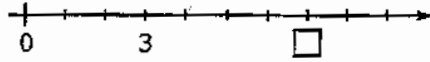
- Other incorrect (including crossed out/erased, stray marks, illegible, or off task)

## Number going in the number line box (continued)

Item Number: M031162

## Student Responses

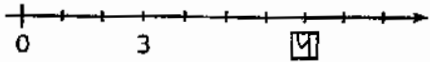
## Correct Response:



On the number line above, what number goes in the box?

Number in  = 7

## Incorrect Response:



On the number line above, what number goes in the box?

Number in  = 4

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Using Concepts

Number tiles: get to 20 using 2,7,9

### 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 RULES

**Pick 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  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{5}$  could place the tiles:

$$\begin{array}{r} \boxed{5} \boxed{1} \\ + \boxed{4} \\ \hline 55 \end{array} \quad \text{or} \quad \begin{array}{r} \boxed{4} \boxed{5} \\ + \boxed{1} \\ \hline 46 \end{array} \quad \text{or} \quad \begin{array}{r} \boxed{1} \boxed{5} \\ + \boxed{4} \\ \hline 19 \end{array} \quad \text{or} \quad \begin{array}{r} \boxed{1} \\ + \boxed{5} \\ + \boxed{4} \\ \hline 10 \end{array}$$

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

Joan and Herbert played the game "Get to 20."

Joan picked  $\boxed{2}$ ,  $\boxed{7}$ , and  $\boxed{9}$ . Herbert picked  $\boxed{1}$ ,  $\boxed{3}$ , and  $\boxed{6}$ .

- 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  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ , I can make 20 two different ways."

Show two ways Herbert could make 20 with  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ .

First way:

Second way:

### Overall Percent Correct

Chinese Taipei	69	▲
Japan	65	▲
Hong Kong, SAR	61	▲
Hungary	53	▲
Italy	53	▲
Lithuania	51	▲
Cyprus	50	▲
Singapore	49	▲
Russian Federation	47	○
Belgium (Flemish)	47	▲
Latvia	45	○
Moldova, Republic of	44	○
United States	43	○
New Zealand	41	○
<b>International average</b>	<b>41</b>	
Netherlands	40	○
Slovenia	40	○
England	40	○
Australia	38	○
Norway	36	○
Scotland	36	○
Tunisia	24	▼
Iran, Islamic Republic of	22	▼
Philippines	13	▼
Morocco	9	▼
Armenia	5	▼

#### Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Number tiles: get to 20 using 2,7,9 (continued)

Item Number: M031344A

**SCORING**

**Correct Response**

- $2 + 7 + 9 = 18$
- 18 without addition statement shown

**Incorrect Response**

- $2 + 7 + 9$  but 18 not shown
- Other incorrect (including crossed out/erased, stray marks, illegible, or off task)

Number tiles: get to 20 using 2,7,9 (continued)

Item Number: M031344A

## Student Responses

### Correct Response:

Joan and Herbert played the game "Get to 20."

Joan picked  $\boxed{2}$ ,  $\boxed{7}$ , and  $\boxed{9}$ . Herbert picked  $\boxed{1}$ ,  $\boxed{3}$ , and  $\boxed{6}$ .

- 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.

$$\begin{array}{r} 2 \quad 7 \\ 7 \quad 9 \\ + 2 \\ \hline 9 \quad 18 \\ \hline 15 \end{array}$$

$$\begin{array}{r} 9 \\ + 2 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 9 \\ + 7 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 7 \\ + 2 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 2 \\ + 9 \\ \hline 11 \end{array}$$

### Incorrect Response:

Joan and Herbert played the game "Get to 20."

Joan picked  $\boxed{2}$ ,  $\boxed{7}$ , and  $\boxed{9}$ . Herbert picked  $\boxed{1}$ ,  $\boxed{3}$ , and  $\boxed{6}$ .

- 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.

$$\begin{array}{r} 29 \\ + 7 \\ \hline 36 \end{array}$$

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Using Concepts

Number tiles: get to 20 using 1,3,6

### 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 RULES

**Pick 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  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{5}$  could place the tiles:

$$\begin{array}{r} \boxed{5} \boxed{1} \\ + \boxed{4} \\ \hline 55 \end{array} \quad \text{or} \quad \begin{array}{r} \boxed{4} \boxed{5} \\ + \boxed{1} \\ \hline 46 \end{array} \quad \text{or} \quad \begin{array}{r} \boxed{1} \boxed{5} \\ + \boxed{4} \\ \hline 19 \end{array} \quad \text{or} \quad \begin{array}{r} \boxed{1} \\ + \boxed{5} \\ + \boxed{4} \\ \hline 10 \end{array}$$

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

Joan and Herbert played the game “Get to 20.”

Joan picked  $\boxed{2}$ ,  $\boxed{7}$ , and  $\boxed{9}$ . Herbert picked  $\boxed{1}$ ,  $\boxed{3}$ , and  $\boxed{6}$ .

- 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  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ , I can make 20 two different ways.”

Show two ways Herbert could make 20 with  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ .

First way:

Second way:

### Overall Percent Correct

Chinese Taipei	65	▲
Hungary	64	▲
Japan	61	▲
Singapore	57	▲
Belgium (Flemish)	57	▲
Latvia	55	▲
Hong Kong, SAR	51	▲
Lithuania	51	▲
England	50	▲
Cyprus	49	▲
Italy	49	▲
United States	48	▲
Russian Federation	46	○
Netherlands	43	○
New Zealand	43	○
Slovenia	41	○

International average	41	
Australia	39	○
Scotland	37	○
Moldova, Republic of	36	○
Norway	35	▼
Iran, Islamic Republic of	13	▼
Philippines	13	▼
Armenia	6	▼
Tunisia	6	▼
Morocco	4	▼

### Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Number tiles: get to 20 using 1,3,6 (continued)

Item Number: M031344B

**SCORING**

**Correct Response**

- $13 + 6 = 19$  OR  $16 + 3 = 19$
- 19 without addition statement shown

**Incorrect Response**

- $13 + 6$  OR  $16 + 3$  but 19 not shown
- Other incorrect (including crossed out/erased, stray marks, illegible, or off task)

Number tiles: get to 20 using 1,3,6 (continued)

Item Number: M031344B

## Student Responses

### Correct Response:

- 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.

Herbert will get 19

### Incorrect Response:

- 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.

all of them



Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Using Concepts

Number tiles: get to 20 using 1,4,6

### 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 RULES

**Pick 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  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{5}$  could place the tiles:

$$\begin{array}{r} \boxed{5} \boxed{1} \\ + \boxed{4} \\ \hline 55 \end{array} \quad \text{or} \quad \begin{array}{r} \boxed{4} \boxed{5} \\ + \boxed{1} \\ \hline 46 \end{array} \quad \text{or} \quad \begin{array}{r} \boxed{1} \boxed{5} \\ + \boxed{4} \\ \hline 19 \end{array} \quad \text{or} \quad \begin{array}{r} \boxed{1} \\ + \boxed{5} \\ + \boxed{4} \\ \hline 10 \end{array}$$

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

Joan and Herbert played the game “Get to 20.”

Joan picked  $\boxed{2}$ ,  $\boxed{7}$ , and  $\boxed{9}$ . Herbert picked  $\boxed{1}$ ,  $\boxed{3}$ , and  $\boxed{6}$ .

- 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  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ , I can make 20 two different ways.”

Show two ways Herbert could make 20 with  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ .

First way:

Second way:

### Overall Percent Correct

Chinese Taipei	66	▲
Singapore	65	▲
Hungary	59	▲
England	59	▲
Japan	58	▲
United States	58	▲
Latvia	57	▲
Hong Kong, SAR	56	▲
Belgium (Flemish)	56	▲
Italy	55	▲
Cyprus	53	▲
New Zealand	53	▲
Russian Federation	53	▲
Netherlands	51	○
Scotland	51	▲
Lithuania	47	○
Slovenia	47	○
Australia	47	○
<b>International average</b>	<b>44</b>	
Norway	39	○
Moldova, Republic of	36	▼
Philippines	12	▼
Iran, Islamic Republic of	11	▼
Armenia	7	▼
Tunisia	4	▼
Morocco	0	▼

#### Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Number tiles: get to 20 using 1,4,6 (continued)

Item Number: M031344C

**SCORING**

**Correct Response**

- Both ways correct  $16 + 4$  AND  $14 + 6$

**Partially Correct Response**

- Only one way correct  $16 + 4$  OR  $14 + 6$

**Incorrect Response**

- Incorrect (including crossed out/erased, stray marks, illegible, or off task)

Number tiles: get to 20 using 1,4,6 (continued)

Item Number: M031344C

## Student Responses

### Correct Response:

- C. Herbert said, "If I pick  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ , I can make 20 two different ways."

Show two ways Herbert could make 20 with  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ .

First way:

$$\begin{array}{r} 11 \\ + 6 \\ \hline 20 \end{array}$$

Second way:

$$\begin{array}{r} 16 \\ + 4 \\ \hline 20 \end{array}$$

### Partially Correct Response:

- C. Herbert said, "If I pick  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ , I can make 20 two different ways."

Show two ways Herbert could make 20 with  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ .

First way:

$$\begin{array}{r} 14 \\ + 6 \\ \hline 20 \end{array}$$

Second way:

Number tiles: get to 20 using 1,4,6 (continued)

Item Number: M031344C

## Student Responses (continued)

### Incorrect Response:

- C. Herbert said, "If I pick  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ , I can make 20 two different ways."

Show two ways Herbert could make 20 with  $\boxed{1}$ ,  $\boxed{4}$ , and  $\boxed{6}$ .

First way:

$$\begin{array}{r} 5 \\ + 6 \\ \hline 20 \end{array}$$

Second way:

$$\begin{array}{r} 4 \\ + 16 \\ \hline 20 \end{array}$$

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