

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Knowing Facts and Procedures

Pair of numbers bracketing 2.25

In which of these pairs of numbers is 2.25 larger than the first number but smaller than the second number?

- (A) 1 and 2
- (B) 2 and $\frac{5}{2}$
- (C) $\frac{5}{2}$ and $\frac{11}{4}$
- (D) $\frac{11}{4}$ and 3

Item Number: M012016

Correct Response:

B

Overall Percent Correct

Korea, Republic of	77	▲
Singapore	71	▲
Belgium (Flemish)	63	▲
Lithuania	61	▲
Hong Kong, SAR	61	▲
Chinese Taipei	60	▲
Russian Federation	58	▲
Hungary	58	▲
Estonia	57	▲
Israel	57	▲
Slovak Republic	55	▲
Japan	55	▲
Sweden	55	○
United States	54	▲
Serbia and Montenegro	54	○
Slovenia	53	○
Romania	52	○
Italy	52	○
Australia	52	○
Latvia	52	○
Philippines	52	○
Netherlands	51	○
Scotland	51	○
Norway	51	○
Cyprus	51	○
International average	50	
Bulgaria	50	○
Malaysia	50	○
England	50	○
Moldova, Republic of	48	○
New Zealand	47	○
Botswana	46	▼
Armenia	46	○
Saudi Arabia	46	▼
Lebanon	45	▼
Ghana	44	▼
Macedonia, Republic of	44	▼
Tunisia	43	▼
Morocco	41	▼
Egypt	40	▼
Bahrain	40	▼
South Africa	39	▼
Chile	39	▼
Palestinian Nat'l Auth.	39	▼
Jordan	38	▼
Iran, Islamic Republic of	38	▼

**Country average vs.
International average:**

Higher ▲
Not different ○
Lower ▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Knowing Facts and Procedures

Scoops of flour needed to fill bag

A scoop holds $\frac{1}{5}$ kg of flour. How many scoops of flour are needed to fill a bag with 6 kg of flour?

Answer: _____

Item Number: M022156

SCORING

Correct Response

- 30

Incorrect Response

- 30 kg [incorrect unit]
- $\frac{6}{5}$ [$6 \times \frac{1}{5}$]
- 4 [$\frac{4}{5}$ more needed to complete 1 kg]
- 5 [5 scoops = 1 kg flour]
- 6 [from stem]
- Other incorrect (including crossed out/erased, stray marks, illegible, or off task).

Overall Percent Correct

Singapore	79	▲
Hong Kong, SAR	76	▲
Chinese Taipei	75	▲
Netherlands	74	▲
Korea, Republic of	68	▲
Japan	62	▲
Belgium (Flemish)	62	▲
Sweden	60	▲
Australia	53	▲
United States	52	▲
Scotland	51	▲
Estonia	51	▲
Latvia	51	▲
Hungary	51	▲
England	50	▲
Russian Federation	49	▲
Israel	48	▲
Malaysia	47	▲
New Zealand	46	▲
Slovenia	46	▲
Armenia	45	▲
Lithuania	43	▲
Slovak Republic	43	▲
Norway	39	○
Romania	39	○
Serbia and Montenegro	38	○
Bulgaria	38	○
International average	38	
Cyprus	37	○
Moldova, Republic of	37	○
Italy	34	○
Indonesia	26	▼
Macedonia, Republic of	22	▼
Iran, Islamic Republic of	20	▼
Tunisia	18	▼
Egypt	17	▼
Jordan	16	▼
Lebanon	15	▼
Chile	13	▼
Philippines	13	▼
Bahrain	11	▼
Botswana	11	▼
Palestinian Nat'l Auth.	10	▼
Morocco	8	▼
South Africa	7	▼
Saudi Arabia	7	▼
Ghana	6	▼

Country average vs.
International average:

Higher	▲
Not different	○
Lower	▼

Scoops of flour needed to fill bag (continued)

Item Number: M022156

Student Responses

Correct Response:

A scoop holds $\frac{1}{5}$ kilograms of flour. How many scoops of flour are needed to fill a bag with 6 kilograms of flour?

Answer: 30 scoops

Incorrect Response:

A scoop holds $\frac{1}{5}$ kilograms of flour. How many scoops of flour are needed to fill a bag with 6 kilograms of flour?

Answer: $\frac{6}{30}$

$$\frac{1}{5} \times 6 = \frac{6}{30}$$

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Knowing Facts and Procedures

Addition/multiplication with fractions

$$\frac{3}{5} + \left(\frac{3}{10} \times \frac{4}{15} \right) =$$

(A) $\frac{3}{51}$

(B) $\frac{1}{6}$

(C) $\frac{6}{25}$

(D) $\frac{11}{25}$

(E) $\frac{17}{25}$

Item Number: M022199

Correct Response:

E

Overall Percent Correct

Chinese Taipei	82	▲
Korea, Republic of	80	▲
Japan	75	▲
Singapore	72	▲
Hong Kong, SAR	69	▲
Egypt	58	▲
Romania	54	▲
Italy	53	▲
Belgium (Flemish)	53	▲
Slovenia	51	▲
Slovak Republic	51	▲
Hungary	50	▲
Estonia	50	▲
Malaysia	48	▲
Bulgaria	48	▲
Russian Federation	48	▲
Latvia	46	▲
Serbia and Montenegro	45	▲
Lithuania	44	▲
Armenia	42	○

International average 40

Lebanon	40	○
Israel	40	○
Netherlands	40	○
Moldova, Republic of	39	○
Cyprus	36	▼
United States	36	▼
Jordan	35	▼
Iran, Islamic Republic of	34	▼
Bahrain	29	▼
Australia	28	▼
Indonesia	28	▼
England	28	▼
New Zealand	28	▼
Palestinian Nat'l Auth.	27	▼
Macedonia, Republic of	27	▼
Tunisia	26	▼
Scotland	26	▼
Morocco	25	▼
Botswana	24	▼
Sweden	22	▼
Philippines	22	▼
Chile	21	▼
Norway	21	▼
South Africa	18	▼
Saudi Arabia	16	▼

Country average vs.
International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Reasoning

Number of men/women at meeting

Two-thirds of the people present at the beginning of a meeting are men. Nobody leaves but 10 more men and 10 more women arrive at the meeting. Which of the following statements is true?

- (A) There would then be more men than women at the meeting.
- (B) There would then be the same number of men as there are women at the meeting.
- (C) There would then be more women than men at the meeting.
- (D) From the information given, you cannot tell whether there would be more women or men.

Item Number: M022191

Correct Response:

A

Overall Percent Correct

Korea, Republic of	89	▲
Japan	87	▲
Netherlands	86	▲
Belgium (Flemish)	83	▲
Singapore	81	▲
Sweden	79	▲
Norway	77	▲
Chinese Taipei	77	▲
Malaysia	74	▲
Hong Kong, SAR	73	▲
Hungary	71	▲
Italy	70	▲
Slovenia	68	▲
Slovak Republic	68	▲
Estonia	67	▲
Scotland	67	▲
England	67	▲
Bulgaria	67	▲
Australia	66	▲
Israel	65	▲
Cyprus	64	▲
Serbia and Montenegro	63	▲
New Zealand	63	○
Latvia	62	○
Lithuania	60	○
International average		59
Russian Federation	57	○
Moldova, Republic of	56	○
Iran, Islamic Republic of	56	○
United States	52	▼
Chile	51	▼
Jordan	51	▼
Indonesia	50	▼
Romania	48	▼
Bahrain	46	▼
Palestinian Nat'l Auth.	46	▼
Morocco	46	▼
Egypt	46	▼
Macedonia, Republic of	45	▼
Botswana	42	▼
Tunisia	40	▼
Armenia	40	▼
Saudi Arabia	37	▼
Ghana	31	▼
Philippines	27	▼
Lebanon	24	▼
South Africa	23	▼

Country average vs.
International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Solving Routine Problems

Fraction of hour between two time points

What fraction of an hour has passed between 1:10 a.m. and 1:30 a.m.?

- (A) $\frac{1}{5}$
- (B) $\frac{1}{3}$
- (C) $\frac{1}{2}$
- (D) $\frac{2}{3}$
- (E) $\frac{3}{4}$

Item Number: M012027

Correct Response:

B

Overall Percent Correct

Singapore	85	▲
Hong Kong, SAR	80	▲
Korea, Republic of	77	▲
Chinese Taipei	77	▲
Sweden	73	▲
England	68	▲
Netherlands	67	▲
Japan	67	▲
Belgium (Flemish)	66	▲
Hungary	66	▲
Australia	65	▲
Slovak Republic	64	▲
Scotland	63	▲
United States	62	▲
Latvia	62	▲
Israel	61	▲
Malaysia	61	▲
New Zealand	60	▲
Slovenia	58	▲
Norway	57	▲
Bulgaria	56	▲
Cyprus	56	▲
Estonia	55	○
Russian Federation	53	○
International average	52	
Moldova, Republic of	52	○
Armenia	50	○
Lithuania	50	○
Serbia and Montenegro	48	○
Jordan	46	▼
Romania	43	▼
Palestinian Nat'l Auth.	43	▼
Egypt	43	▼
Italy	41	▼
Lebanon	40	▼
Philippines	40	▼
Macedonia, Republic of	40	▼
Bahrain	40	▼
Iran, Islamic Republic of	38	▼
Indonesia	38	▼
Saudi Arabia	30	▼
Botswana	29	▼
Chile	28	▼
South Africa	27	▼
Morocco	26	▼
Ghana	24	▼
Tunisia	20	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Solving Routine Problems

Fraction birthdays in first half of year

In a group of children, 16 have birthdays during the first half of the year, and 14 have birthdays during the second half of the year. What fraction of the group have birthdays during the first half of the year?

- (A) $\frac{14}{30}$
- (B) $\frac{14}{16}$
- (C) $\frac{16}{14}$
- (D) $\frac{16}{30}$
- (E) $\frac{30}{16}$

Item Number: M012041

Correct Response:

D

Overall Percent Correct

Korea, Republic of	90	▲
Singapore	90	▲
Hong Kong, SAR	86	▲
Netherlands	82	▲
Chinese Taipei	79	▲
Belgium (Flemish)	76	▲
Sweden	76	▲
England	75	▲
Malaysia	75	▲
Israel	74	▲
United States	72	▲
Norway	71	▲
Australia	69	▲
New Zealand	69	▲
Scotland	69	▲
Japan	68	▲
Estonia	62	▲
Slovenia	60	▲
Cyprus	59	▲
Hungary	58	▲
Italy	57	▲
Latvia	57	▲
Lithuania	57	○
Russian Federation	55	○
Slovak Republic	54	○
International average	52	
Iran, Islamic Republic of	46	▼
Bulgaria	43	▼
Romania	41	▼
Botswana	40	▼
Moldova, Republic of	38	▼
Jordan	37	▼
Chile	36	▼
Indonesia	36	▼
Egypt	35	▼
Lebanon	33	▼
Macedonia, Republic of	31	▼
Palestinian Nat'l Auth.	31	▼
Serbia and Montenegro	31	▼
Tunisia	31	▼
Bahrain	30	▼
Philippines	28	▼
Armenia	27	▼
Morocco	21	▼
South Africa	21	▼
Ghana	20	▼
Saudi Arabia	15	▼

Country average vs.
International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Solving Routine Problems

4/5 of books more than 2/3

A teacher and a doctor each have 45 books. If $\frac{4}{5}$ of the teacher's books and $\frac{2}{3}$ of the doctor's books are novels, how many more novels does the teacher have than the doctor?

- (A) 2
(B) 3
(C) 6
(D) 30
(E) 36

Item Number: M022004

Correct Response:

C

Overall Percent Correct

Singapore	85	▲
Korea, Republic of	80	▲
Hong Kong, SAR	78	▲
Chinese Taipei	78	▲
Malaysia	69	▲
Netherlands	68	▲
Japan	66	▲
Sweden	65	▲
Belgium (Flemish)	63	▲
Scotland	61	▲
Hungary	60	▲
England	57	▲
Latvia	57	▲
Slovenia	57	▲
Italy	56	▲
Estonia	54	▲
Romania	53	▲
Australia	53	▲
Slovak Republic	52	○
Israel	52	○
Cyprus	51	○
Lithuania	50	○
New Zealand	50	○
United States	50	○
Bulgaria	49	○
Serbia and Montenegro	48	○
International average	48	
Russian Federation	45	○
Moldova, Republic of	44	○
Norway	43	▼
Macedonia, Republic of	38	▼
Armenia	38	▼
Iran, Islamic Republic of	38	▼
Egypt	37	▼
Philippines	35	▼
Indonesia	35	▼
Palestinian Nat'l Auth.	34	▼
Botswana	33	▼
Jordan	33	▼
Chile	33	▼
Lebanon	28	▼
Bahrain	27	▼
South Africa	27	▼
Ghana	25	▼
Tunisia	25	▼
Morocco	24	▼
Saudi Arabia	24	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Solving Routine Problems

Time for Betty to run race

Alice ran a race in 49.86 seconds. Betty ran the same race in 52.30 seconds. How much longer did it take Betty to run the race than Alice?

- Ⓐ 2.44 seconds
 Ⓑ 2.54 seconds
 Ⓒ 3.56 seconds
 Ⓓ 3.76 seconds

Item Number: M022010

Correct Response:

A

Overall Percent Correct

Singapore	88	▲
Korea, Republic of	87	▲
Malaysia	81	▲
Netherlands	81	▲
Hungary	80	▲
Chinese Taipei	80	▲
Japan	78	▲
Russian Federation	76	▲
Hong Kong, SAR	75	▲
Slovak Republic	74	▲
United States	74	▲
Slovenia	73	▲
Estonia	72	▲
Belgium (Flemish)	71	▲
Scotland	71	▲
Moldova, Republic of	69	▲
Serbia and Montenegro	68	▲
Latvia	67	▲
Bulgaria	66	▲
Lithuania	65	▲
Romania	64	○
Tunisia	63	○
Australia	63	○
Sweden	63	○
Italy	62	○
Botswana	61	○
Lebanon	61	○
International average	61	
Armenia	60	○
Macedonia, Republic of	59	○
Cyprus	59	○
Egypt	58	○
Israel	58	○
Indonesia	55	▼
England	54	▼
New Zealand	53	▼
Jordan	46	▼
Norway	46	▼
Philippines	45	▼
Morocco	45	▼
Bahrain	45	▼
Iran, Islamic Republic of	44	▼
Chile	42	▼
Palestinian Nat'l Auth.	37	▼
Ghana	32	▼
South Africa	29	▼
Saudi Arabia	19	▼

Country average vs.
International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Solving Routine Problems

Fuel remaining in tank at end of trip

A car has a fuel tank that holds 45 L of fuel. The car consumes 8.5 L of fuel for each 100 km driven. A trip of 350 km was started with a full tank of fuel. How much remained in the tank at the end of the trip?

- (A) 15.25 L
 (B) 16.25 L
 (C) 24.75 L
 (D) 29.75 L

Item Number: M022127

Correct Response:

A

Overall Percent Correct

Singapore	56	▲
Chinese Taipei	50	▲
Hong Kong, SAR	43	▲
Korea, Republic of	43	▲
Japan	38	▲
Netherlands	38	▲
Malaysia	34	▲
Moldova, Republic of	33	▲
Lithuania	32	▲
Hungary	32	▲
Estonia	31	▲
Romania	30	○
Belgium (Flemish)	30	▲
Russian Federation	29	○
Australia	28	○
Armenia	27	○
Latvia	26	○
International average	26	
Slovenia	26	○
Macedonia, Republic of	25	○
United States	25	○
Slovak Republic	24	○
New Zealand	24	○
Indonesia	23	○
Sweden	23	○
Jordan	23	○
Bulgaria	23	○
Cyprus	22	▼
Saudi Arabia	22	○
Israel	22	▼
Serbia and Montenegro	22	▼
Italy	21	▼
Egypt	21	▼
Botswana	20	▼
Chile	20	▼
Ghana	20	▼
England	20	▼
Scotland	19	▼
Morocco	19	▼
Tunisia	19	▼
South Africa	18	▼
Iran, Islamic Republic of	18	▼
Palestinian Nat'l Auth.	17	▼
Philippines	17	▼
Bahrain	16	▼
Norway	16	▼
Lebanon	12	▼

Country average vs.
International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Solving Routine Problems

John and Cathy to divide a number by 100

John and Cathy were told to divide a number by 100. By mistake John multiplied the number by 100 and obtained an answer of 450. Cathy correctly divided the number by 100. What was her answer?

- (A) 0.0045
 (B) 0.045
 (C) 0.45
 (D) 4.5

Item Number: M032079

Correct Response:

B

Overall Percent Correct

Singapore	58	▲
Belgium (Flemish)	58	▲
Estonia	56	▲
Japan	56	▲
Hong Kong, SAR	56	▲
Korea, Republic of	52	▲
Russian Federation	51	▲
Hungary	51	▲
Netherlands	51	▲
Chinese Taipei	46	▲
Slovak Republic	45	▲
Lithuania	43	▲
Israel	41	▲
Sweden	41	▲
Latvia	37	○
New Zealand	36	○
Australia	35	○
Scotland	35	○
International average	34	
Italy	34	○
England	34	○
Cyprus	33	○
Slovenia	32	○
United States	32	○
Moldova, Republic of	32	○
Serbia and Montenegro	32	○
Norway	31	○
Romania	29	▼
Armenia	28	▼
Egypt	27	▼
Malaysia	27	▼
Saudi Arabia	26	▼
Lebanon	26	▼
Macedonia, Republic of	23	▼
Bahrain	23	▼
Philippines	23	▼
Morocco	23	▼
Chile	23	▼
Iran, Islamic Republic of	22	▼
Ghana	22	▼
Bulgaria	22	▼
Indonesia	21	▼
Palestinian Nat'l Auth.	21	▼
South Africa	20	▼
Tunisia	18	▼
Botswana	16	▼

Country average vs. International average:

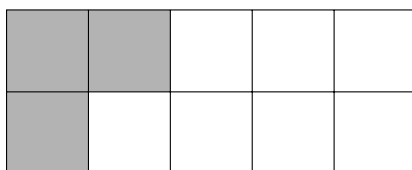
Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Using Concepts

Number of squares in shaded fraction

In the figure, how many MORE small squares need to be shaded so that $\frac{4}{5}$ of the small squares are shaded?

- (A) 5
(B) 4
(C) 3
(D) 2
(E) 1



Item Number: M012001

Correct Response:

A

Overall Percent Correct

Singapore	88	▲
Hong Kong, SAR	87	▲
Belgium (Flemish)	84	▲
Korea, Republic of	82	▲
Netherlands	80	▲
Japan	79	▲
Chinese Taipei	78	▲
Sweden	71	▲
Malaysia	67	▲
Israel	67	▲
Hungary	66	▲
Australia	66	▲
Scotland	63	▲
Norway	62	▲
England	62	▲
United States	61	▲
New Zealand	60	▲
Slovenia	59	▲
Estonia	59	▲
Cyprus	56	▲
Latvia	56	▲
Russian Federation	52	○
Slovak Republic	52	○
Moldova, Republic of	50	○
Italy	50	○
International average	49	
Lithuania	47	○
Bulgaria	46	○
Romania	45	○
Armenia	42	▼
Serbia and Montenegro	42	▼
Iran, Islamic Republic of	41	▼
Macedonia, Republic of	37	▼
Jordan	32	▼
Egypt	30	▼
Palestinian Nat'l Auth.	29	▼
Tunisia	26	▼
Bahrain	25	▼
Philippines	23	▼
Lebanon	22	▼
Morocco	22	▼
Chile	21	▼
Indonesia	21	▼
Saudi Arabia	19	▼
South Africa	16	▼
Botswana	16	▼
Ghana	8	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Using Concepts

Fraction less than $\frac{4}{9}$

Write a fraction that is less than $\frac{4}{9}$.

Answer: _____

Item Number: M022012

SCORING

Correct Response

- A fraction with numerator smaller than 4 and denominator equal to 9, includes $\frac{3}{9} = \frac{1}{3}$ OR $\frac{1}{3}$.
- A fraction with numerator equal to 4 and denominator greater than 9, includes $\frac{4}{10} = \frac{2}{5}$ OR $\frac{2}{5}$.
- $\frac{3}{8}$
- Other correct fraction

Incorrect Response

- $\frac{5}{9}$
- $\frac{2}{3}$
- Any fraction equivalent to $\frac{4}{9}$.
- Other incorrect (including crossed out/erased, stray marks, illegible, or off task).

Overall Percent Correct

Singapore	84	▲
Korea, Republic of	81	▲
Japan	81	▲
Hong Kong, SAR	79	▲
Chinese Taipei	77	▲
Israel	74	▲
Hungary	72	▲
Armenia	72	▲
Australia	71	▲
Sweden	70	▲
United States	69	▲
Netherlands	69	▲
England	68	▲
Slovak Republic	66	▲
New Zealand	64	▲
Norway	64	▲
Slovenia	64	▲
Estonia	63	▲
Belgium (Flemish)	62	▲
Russian Federation	62	▲
Scotland	60	▲
Cyprus	60	▲

International average 54

Romania	54	○
Bulgaria	54	○
Serbia and Montenegro	52	○
Egypt	52	○
Latvia	52	○
Lithuania	50	○
Palestinian Nat'l Auth.	50	▼
Botswana	49	▼
Italy	48	▼
Jordan	48	▼
Tunisia	47	▼
Iran, Islamic Republic of	47	▼
Malaysia	43	▼
Bahrain	41	▼
Moldova, Republic of	40	▼
Saudi Arabia	39	▼
Chile	36	▼
Macedonia, Republic of	35	▼
South Africa	30	▼
Lebanon	28	▼
Indonesia	26	▼
Philippines	25	▼
Morocco	24	▼
Ghana	21	▼

Country average vs.
International average:

Higher	▲
Not different	○
Lower	▼

Fraction less than $\frac{4}{9}$ (continued)

Item Number: M022012

Student Responses

Correct Response:

Write a fraction that is less than $\frac{4}{9}$.Answer: $\frac{4}{10}$

Incorrect Response:

Write a fraction that is less than $\frac{4}{9}$.Answer: $\frac{2}{3}$

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Using Concepts

Decimal rounded to nearest hundredth

Which of the following is 78.2437 rounded to the nearest hundredth?

- (A) 100
- (B) 80
- (C) 78.2
- (D) 78.24
- (E) 78.244

Item Number: M022144

Correct Response:

D

Overall Percent Correct

Korea, Republic of	88	▲
Serbia and Montenegro	74	▲
Russian Federation	73	▲
Lithuania	72	▲
Hungary	72	▲
Slovak Republic	71	▲
Belgium (Flemish)	66	▲
United States	66	▲
Estonia	62	▲
Moldova, Republic of	55	▲
Sweden	55	▲
Singapore	54	▲
Italy	54	▲
Japan	54	▲
Latvia	54	▲
Netherlands	54	▲
Chinese Taipei	49	○
Slovenia	49	○
International average	47	
Australia	47	○
Cyprus	46	○
Lebanon	45	○
Malaysia	45	○
Palestinian Nat'l Auth.	44	○
Israel	43	○
New Zealand	41	▼
Egypt	41	▼
Scotland	41	▼
Jordan	40	▼
England	40	▼
Indonesia	39	▼
Philippines	38	▼
Bulgaria	38	▼
Iran, Islamic Republic of	37	▼
Morocco	37	▼
Saudi Arabia	36	▼
Romania	35	▼
Norway	33	▼
Bahrain	32	▼
Macedonia, Republic of	32	▼
Chile	30	▼
Armenia	29	▼
Ghana	29	▼
Hong Kong, SAR	29	▼
Botswana	28	▼
South Africa	22	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Using Concepts

Decimals ordered greatest to least

In which list are the numbers ordered from greatest to least?

- (A) 0.233, 0.3, 0.32, 0.332
 (B) 0.3, 0.32, 0.332, 0.233
 (C) 0.32, 0.233, 0.332, 0.3
 (D) 0.332, 0.32, 0.3, 0.233

Item Number: M022198

Correct Response:

D

Overall Percent Correct

Singapore	79	▲
Belgium (Flemish)	74	▲
Hong Kong, SAR	72	▲
Netherlands	66	▲
Chinese Taipei	63	▲
Estonia	62	▲
Malaysia	62	▲
Korea, Republic of	59	▲
Sweden	59	▲
Latvia	58	▲
Japan	53	▲
Australia	53	▲
Slovak Republic	52	▲
Lithuania	49	▲
Russian Federation	49	▲
Scotland	48	○
United States	48	▲
Slovenia	48	○
Italy	47	○
Hungary	47	○
Bulgaria	47	○
Egypt	46	○
Romania	46	○
Moldova, Republic of	44	○
England	44	○
International average	44	
Armenia	42	○
Lebanon	42	○
New Zealand	42	○
Cyprus	39	○
Israel	38	▼
Morocco	38	▼
Chile	35	▼
Norway	35	▼
Jordan	35	▼
Serbia and Montenegro	34	▼
Tunisia	33	▼
Macedonia, Republic of	32	▼
Indonesia	29	▼
Palestinian Nat'l Auth.	29	▼
Bahrain	27	▼
Philippines	25	▼
Saudi Arabia	23	▼
Ghana	20	▼
Iran, Islamic Republic of	18	▼
Botswana	18	▼
South Africa	16	▼

Country average vs.
International average:

Higher ▲
 Not different ○
 Lower ▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Fractions and Decimals	Using Concepts

The number closest to 10

Use the patterns in the previous table to answer the following questions.

- A. Pat made a shape with a **total** of 64 tiles. How many were black and how many were red?

Answer: _____ black tiles _____ red tiles

- B. Pat made a shape that used 49 **black** tiles.
How many **red** tiles did Pat use in that shape?

Answer: _____ red tiles

- C. Next, Pat made a shape using 44 of the **red** tiles. How many black tiles would Pat need to complete the black part of the shape?

Answer: _____ black tiles

Item Number: M032670

Overall Percent Correct

Netherlands	97	▲
Sweden	96	▲
Estonia	96	▲
Singapore	95	▲
Lithuania	95	▲
Belgium (Flemish)	94	▲
Korea, Republic of	94	▲
Malaysia	93	▲
Japan	92	▲
Serbia and Montenegro	91	▲
Norway	91	▲
Russian Federation	91	▲
Latvia	90	▲
Slovak Republic	90	▲
Italy	90	▲
Hong Kong, SAR	89	▲
Scotland	89	▲
Chinese Taipei	89	▲
Cyprus	88	▲
Hungary	88	▲
Australia	88	▲
United States	87	▲
Slovenia	87	▲
New Zealand	86	▲
Bulgaria	85	▲
England	82	▲
Moldova, Republic of	82	▲
Israel	81	▲
Romania	79	○
Macedonia, Republic of	78	○
International average	76	
Tunisia	76	○
Morocco	75	○
Indonesia	74	○
Iran, Islamic Republic of	69	▼
Chile	67	▼
Lebanon	67	▼
Armenia	66	▼
Jordan	55	▼
Palestinian Nat'l Auth.	50	▼
Bahrain	49	▼
Egypt	48	▼
Philippines	42	▼
Botswana	40	▼
Saudi Arabia	35	▼
South Africa	30	▼
Ghana	24	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Correct Response:

B

Content Domain	Main Topic	Cognitive Domain
NUMBER	Integers	Knowing Facts and Procedures

The value of 1 minus 5 times -2

What is the value of $1 - 5 \times (-2)$?

- (A) 11
 (B) 8
 (C) -8
 (D) -9

Item Number: M032612

Correct Response:

A

Overall Percent Correct

Japan	74	▲
Singapore	70	▲
Hong Kong, SAR	67	▲
Chinese Taipei	66	▲
Netherlands	61	▲
Belgium (Flemish)	55	▲
Korea, Republic of	54	▲
Slovak Republic	52	▲
Estonia	52	▲
Israel	52	▲
Romania	49	▲
New Zealand	48	▲
Russian Federation	46	▲
Bulgaria	46	▲
Australia	45	▲
Armenia	44	▲
Latvia	42	▲
Hungary	42	▲
Lebanon	42	▲
Malaysia	39	○
Botswana	39	○
Lithuania	38	○
United States	38	○
Italy	37	○
Egypt	37	○
Slovenia	36	○
International average	35	
Serbia and Montenegro	33	○
Moldova, Republic of	33	○
Macedonia, Republic of	32	○
England	25	▼
Tunisia	24	▼
Cyprus	23	▼
Philippines	21	▼
Jordan	19	▼
Palestinian Nat'l Auth.	19	▼
Scotland	18	▼
South Africa	17	▼
Bahrain	15	▼
Indonesia	12	▼
Saudi Arabia	12	▼
Sweden	10	▼
Chile	10	▼
Iran, Islamic Republic of	10	▼
Morocco	6	▼
Norway	5	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Integers	Using Concepts

If n is a negative integer

If n is a negative integer, which of these is the largest number?

- (A) $3 + n$
 (B) $3 \times n$
 (C) $3 - n$
 (D) $3 \div n$

Item Number: M032643

Correct Response:

C

Overall Percent Correct

Korea, Republic of	78	▲
Chinese Taipei	74	▲
Russian Federation	69	▲
Japan	68	▲
Hong Kong, SAR	67	▲
Singapore	58	▲
Hungary	53	▲
Estonia	51	▲
Latvia	49	▲
Belgium (Flemish)	48	▲
United States	48	▲
Israel	48	▲
Armenia	47	▲
Slovak Republic	46	▲
Serbia and Montenegro	46	▲
Netherlands	44	○
Bulgaria	42	○
Romania	41	○
Lebanon	41	○
Lithuania	40	○
Malaysia	40	○
International average	40	
Moldova, Republic of	39	○
Slovenia	38	○
Egypt	37	○
Australia	36	○
Cyprus	34	▼
Italy	32	▼
Iran, Islamic Republic of	32	▼
Philippines	32	▼
Macedonia, Republic of	32	▼
New Zealand	31	▼
Jordan	29	▼
Palestinian Nat'l Auth.	29	▼
Sweden	28	▼
Scotland	28	▼
Indonesia	27	▼
England	26	▼
South Africa	26	▼
Norway	25	▼
Morocco	25	▼
Saudi Arabia	25	▼
Bahrain	22	▼
Tunisia	22	▼
Botswana	22	▼
Chile	18	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Ratio, Proportions, and Percent	Knowing Facts and Procedures

Percent decrease in travel time

When a new highway is built, the average time it takes a bus to travel from one town to another is reduced from 25 minutes to 20 minutes. What is the percent decrease in time taken to travel between the two towns?

- (A) 4%
- (B) 5%
- (C) 20%
- (D) 25%

Item Number: M022139

Correct Response:

C

Overall Percent Correct

Singapore	70	▲
Netherlands	62	▲
Hong Kong, SAR	61	▲
Malaysia	48	▲
Sweden	47	▲
Australia	46	▲
Korea, Republic of	45	▲
Scotland	42	▲
England	42	▲
Hungary	40	▲
Chinese Taipei	40	▲
New Zealand	40	▲
Japan	39	▲
Slovak Republic	38	▲
Israel	38	▲
Slovenia	38	▲
Belgium (Flemish)	38	▲
Estonia	37	▲
Latvia	37	▲
United States	35	▲
Lithuania	34	○
Cyprus	34	○
Norway	34	○
Russian Federation	32	○
Serbia and Montenegro	32	○
International average	31	
Moldova, Republic of	29	○
Bulgaria	28	○
Romania	27	▼
Jordan	22	▼
South Africa	21	▼
Chile	21	▼
Armenia	20	▼
Italy	20	▼
Macedonia, Republic of	19	▼
Bahrain	19	▼
Indonesia	19	▼
Palestinian Nat'l Auth.	18	▼
Iran, Islamic Republic of	18	▼
Botswana	18	▼
Lebanon	17	▼
Egypt	17	▼
Philippines	17	▼
Saudi Arabia	17	▼
Morocco	15	▼
Ghana	15	▼
Tunisia	12	▼

Country average vs.
International average:

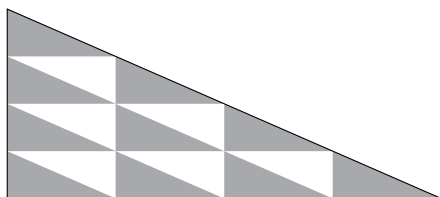
Higher ▲

Not different ○

Lower ▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Ratio, Proportions, and Percent	Knowing Facts and Procedures

The ratio of the shaded area to the unshaded



In the figure above, each of the smaller triangles has the same area. What is the ratio of the shaded area to the unshaded area?

- (A) 5:3
- (B) 8:5
- (C) 5:8
- (D) 3:5

Item Number: M032447

Correct Response:

A

Overall Percent Correct

Singapore	87	▲
Chinese Taipei	81	▲
Korea, Republic of	80	▲
Hong Kong, SAR	74	▲
Malaysia	72	▲
Japan	71	▲
Slovak Republic	56	▲
Australia	55	▲
Scotland	54	▲
Latvia	52	▲
England	52	▲
Hungary	52	▲
Netherlands	51	▲
United States	50	▲
Lithuania	50	▲
Slovenia	48	▲
Serbia and Montenegro	48	▲
Russian Federation	47	▲
Indonesia	45	○
Bulgaria	44	○
Belgium (Flemish)	43	○
Estonia	42	○
International average	41	
New Zealand	39	○
Israel	38	○
Cyprus	37	○
Romania	37	○
Philippines	37	○
Moldova, Republic of	37	○
Italy	35	▼
Macedonia, Republic of	35	▼
Sweden	31	▼
Armenia	28	▼
Palestinian Nat'l Auth.	27	▼
Iran, Islamic Republic of	26	▼
Egypt	26	▼
Saudi Arabia	26	▼
Norway	23	▼
Jordan	21	▼
Chile	20	▼
Bahrain	19	▼
Botswana	17	▼
South Africa	16	▼
Morocco	16	▼
Lebanon	16	▼
Tunisia	14	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Ratio, Proportions, and Percent	Reasoning

A computer club had 40 members

A computer club had 40 members, and 60% of the members were girls. Later, 10 boys joined the club. What percent of the members now are girls? Show the calculations that led to your answer.

Answer: _____

Item Number: M032233

SCORING

Correct Response

- 48% with calculations shown.

Partial Response

- 24 girls
- Correct method but computational error.
- 48% with no calculations shown.

Incorrect Response

- 50%
- Other incorrect (including crossed out/erased, stray marks, illegible or off task).

Overall Percent Correct

Singapore	64	▲
Korea, Republic of	44	▲
Chinese Taipei	41	▲
Hong Kong, SAR	29	▲
Hungary	28	▲
Malaysia	23	▲
Belgium (Flemish)	21	▲
Sweden	21	▲
Slovak Republic	19	▲
Estonia	19	▲
Netherlands	18	▲
Lithuania	18	▲
Japan	16	▲
England	16	○
Scotland	14	○
United States	14	○
Australia	13	○
Slovenia	13	○
Israel	13	○
New Zealand	12	○
International average	12	
Latvia	9	○
Serbia and Montenegro	9	○
Armenia	8	○
Romania	7	▼
Russian Federation	6	▼
Italy	6	▼
Bulgaria	6	▼
Cyprus	4	▼
Norway	3	▼
Chile	3	▼
Indonesia	3	▼
Lebanon	3	▼
Philippines	2	▼
South Africa	2	▼
Iran, Islamic Republic of	2	▼
Jordan	2	▼
Palestinian Nat'l Auth.	2	▼
Egypt	2	▼
Morocco	1	▼
Botswana	1	▼
Tunisia	1	▼
Moldova, Republic of	1	▼
Macedonia, Republic of	1	▼
Bahrain	0	▼
Ghana	0	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

A computer club had 40 members (continued)

Item Number: M032233

Student Responses

Correct Response:

A computer club had 40 members, and 60% of the members were girls.
Later, 10 boys joined the club. What percent of the members now are girls?
Show the calculations that lead to your answer.

Answer: 48%

$$40 \cdot 60\% = 24$$

50 members
24 girls
26 boys

$$\begin{array}{r} 48 \\ 24 \overline{) 50} \end{array}$$

Partial Response:

A computer club had 40 members, and 60% of the members were girls.
Later, 10 boys joined the club. What percent of the members now are girls?
Show the calculations that lead to your answer.

Answer: 48%

$$\begin{array}{r} 24 \\ 40 \overline{) 100} \end{array}$$

24 girls
~~10 boys~~
26 boys

Incorrect Response:

A computer club had 40 members, and 60% of the members were girls.
Later, 10 boys joined the club. What percent of the members now are girls?
Show the calculations that lead to your answer.

Answer: 50%

40 ~~100~~ % boys

Content Domain	Main Topic	Cognitive Domain
NUMBER	Ratio, Proportions, and Percent	Solving Routine Problems

Laps run by Carol and Alice from ratio

Alice can run 4 laps around a track in the same time that Carol can run 3 laps. When Carol has run 12 laps, how many laps has Alice run?

- (A) 9
(B) 11
(C) 13
(D) 16

Item Number: M012004

Correct Response:

D

Overall Percent Correct

Singapore	75	▲
Belgium (Flemish)	69	▲
Japan	68	▲
Chinese Taipei	66	▲
Netherlands	66	▲
Sweden	62	▲
Hong Kong, SAR	61	▲
Slovak Republic	59	▲
Latvia	55	▲
Lithuania	55	▲
Russian Federation	54	▲
Israel	53	▲
Australia	52	○
Norway	52	▲
Estonia	51	▲
Korea, Republic of	51	▲
Iran, Islamic Republic of	48	○
United States	48	○
Ghana	47	○
International average	47	
Serbia and Montenegro	47	○
South Africa	47	○
Cyprus	46	○
Lebanon	46	○
New Zealand	46	○
Slovenia	46	○
England	45	○
Scotland	45	○
Hungary	43	▼
Malaysia	43	○
Palestinian Nat'l Auth.	43	▼
Armenia	42	▼
Philippines	42	▼
Tunisia	42	▼
Jordan	41	▼
Egypt	40	▼
Moldova, Republic of	40	▼
Botswana	39	▼
Romania	37	▼
Bulgaria	36	▼
Macedonia, Republic of	36	▼
Italy	35	▼
Saudi Arabia	35	▼
Indonesia	34	▼
Morocco	33	▼
Chile	32	▼
Bahrain	29	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Ratio, Proportions, and Percent	Solving Routine Problems

A shop increased its prices by 20%

A shop increased its prices by 20%. What is the new price of an item which previously sold for 800 zeds?

- (A) 640 zeds
- (B) 900 zeds
- (C) 960 zeds
- (D) 1,000 zeds

Item Number: M032228

Correct Response:

C

Overall Percent Correct

Singapore	87	▲
Hong Kong, SAR	86	▲
Netherlands	79	▲
Chinese Taipei	74	▲
Korea, Republic of	74	▲
Slovak Republic	73	▲
Hungary	72	▲
Belgium (Flemish)	72	▲
Sweden	70	▲
Estonia	65	▲
Japan	63	▲
Scotland	62	▲
Malaysia	62	▲
Russian Federation	61	▲
Lithuania	58	▲
Israel	58	▲
United States	57	▲
Australia	55	▲
Slovenia	55	▲
Romania	54	○
Latvia	54	○
England	52	○
Serbia and Montenegro	51	○
International average	49	
New Zealand	49	○
Italy	49	○
Norway	48	○
Bulgaria	47	○
Armenia	45	▼
Cyprus	45	▼
Moldova, Republic of	44	▼
Chile	41	▼
Tunisia	40	▼
Macedonia, Republic of	39	▼
Indonesia	34	▼
Botswana	32	▼
Philippines	31	▼
Lebanon	31	▼
Morocco	30	▼
Egypt	29	▼
Bahrain	27	▼
Palestinian Nat'l Auth.	26	▼
Jordan	25	▼
Iran, Islamic Republic of	24	▼
Saudi Arabia	22	▼
South Africa	19	▼
Ghana	16	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Ratio, Proportions, and Percent	Solving Routine Problems

A machine uses 2.4 liters of gasoline

A machine uses 2.4 liters of gasoline for every 30 hours of operation.
How many liters of gasoline will the machine use in 100 hours?

- (A) 7.2
(B) 8.0
(C) 8.4
(D) 9.6

Item Number: M032533

Correct Response:

B

Overall Percent Correct

Singapore	89	▲
Netherlands	78	▲
Hong Kong, SAR	77	▲
Korea, Republic of	75	▲
Belgium (Flemish)	74	▲
Chinese Taipei	71	▲
Malaysia	68	▲
Japan	66	▲
Estonia	65	▲
Lithuania	64	▲
Slovak Republic	63	▲
Hungary	63	▲
Sweden	60	▲
Lebanon	55	▲
United States	55	▲
Russian Federation	54	▲
Israel	53	▲
England	50	○
Scotland	50	○
Latvia	50	○
Slovenia	50	○
Australia	49	○
Romania	48	○
International average	47	
Serbia and Montenegro	45	○
Italy	44	○
Norway	44	○
Moldova, Republic of	44	○
Cyprus	44	○
Bulgaria	43	○
New Zealand	42	○
Armenia	41	▼
Jordan	40	▼
Macedonia, Republic of	38	▼
Egypt	34	▼
Iran, Islamic Republic of	31	▼
Indonesia	31	▼
Palestinian Nat'l Auth.	31	▼
Tunisia	30	▼
Chile	29	▼
Philippines	27	▼
Morocco	27	▼
Botswana	23	▼
Bahrain	23	▼
Saudi Arabia	22	▼
South Africa	17	▼
Ghana	17	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Ratio, Proportions, and Percent	Solving Routine Problems

Three brothers receive 45,000 zeds

Three brothers, Bob, Dan, and Mark, receive a gift of 45,000 zeds from their father. The money is shared between the brothers in proportion to the number of children each one has. Bob has 2 children, Dan has 3 children, and Mark has 4 children.

How many zeds does Mark get?

- (A) 5,000
 (B) 10,000
 (C) 15,000
 (D) 20,000

Item Number: M032727

Correct Response:

D

Overall Percent Correct

Singapore	85	▲
Hong Kong, SAR	73	▲
Korea, Republic of	71	▲
Chinese Taipei	68	▲
Sweden	67	▲
Hungary	67	▲
Estonia	67	▲
Netherlands	66	▲
Slovak Republic	65	▲
Belgium (Flemish)	63	▲
Japan	60	▲
Malaysia	57	▲
England	55	▲
Australia	55	▲
Romania	53	▲
Israel	52	▲
Russian Federation	52	▲
New Zealand	50	○
Lithuania	49	○
Italy	48	○
Scotland	48	○
Serbia and Montenegro	48	○
United States	45	○
Norway	45	○
Slovenia	45	○
International average	45	
Cyprus	42	○
Chile	41	○
Moldova, Republic of	40	○
Latvia	37	▼
Bulgaria	37	▼
Macedonia, Republic of	36	▼
Iran, Islamic Republic of	35	▼
South Africa	32	▼
Ghana	32	▼
Philippines	29	▼
Jordan	29	▼
Armenia	28	▼
Palestinian Nat'l Auth.	28	▼
Indonesia	27	▼
Lebanon	26	▼
Tunisia	24	▼
Morocco	22	▼
Botswana	21	▼
Bahrain	21	▼
Egypt	20	▼
Saudi Arabia	18	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Ratio, Proportions, and Percent	Using Concepts

3/25 of the people in the audience were children

At a play, $\frac{3}{25}$ of the people in the audience were children.

What percent of the audience was this?

- (A) 12%
- (B) 3%
- (C) 0.3%
- (D) 0.12%

Item Number: M032570

Correct Response:

A

Overall Percent Correct

Singapore	96	▲
Hong Kong, SAR	90	▲
Belgium (Flemish)	87	▲
Malaysia	84	▲
Netherlands	79	▲
Chinese Taipei	77	▲
Korea, Republic of	76	▲
England	71	▲
United States	70	▲
Botswana	70	▲
New Zealand	67	▲
Australia	67	▲
Latvia	65	▲
Cyprus	64	▲
Scotland	63	▲
Israel	63	▲
Slovenia	61	▲
Sweden	61	▲
Japan	60	▲
Lithuania	59	○
Estonia	57	○
Slovak Republic	56	○
Hungary	55	○
International average	55	
Russian Federation	52	○
Indonesia	51	○
Bulgaria	50	○
Norway	50	▼
Romania	49	▼
Italy	47	▼
Serbia and Montenegro	45	▼
Egypt	44	▼
Armenia	42	▼
Macedonia, Republic of	42	▼
Philippines	42	▼
Moldova, Republic of	42	▼
Ghana	41	▼
Iran, Islamic Republic of	39	▼
Palestinian Nat'l Auth.	39	▼
Jordan	39	▼
Chile	39	▼
Bahrain	36	▼
Lebanon	34	▼
South Africa	33	▼
Tunisia	30	▼
Morocco	29	▼
Saudi Arabia	25	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Knowing Facts and Procedures

The closest to 11 squared plus 9 squared

Which of these is closest to $11^2 + 9^2$?

- (A) $20 + 20$
 (B) $20 + 80$
 (C) $120 + 20$
 (D) $120 + 80$

Item Number: M032609

Correct Response:

D

Overall Percent Correct

Hong Kong, SAR	88	▲
Latvia	88	▲
Hungary	85	▲
Russian Federation	84	▲
United States	82	▲
Slovak Republic	82	▲
Estonia	81	▲
Slovenia	81	▲
Lebanon	80	▲
Belgium (Flemish)	80	▲
Korea, Republic of	80	▲
Malaysia	80	▲
Chinese Taipei	80	▲
Romania	80	▲
Singapore	80	▲
Serbia and Montenegro	79	▲
Italy	79	▲
Lithuania	77	▲
Cyprus	74	▲
Australia	73	▲
Netherlands	69	▲
Macedonia, Republic of	68	▲
Bulgaria	67	▲
Indonesia	65	○
England	64	○
Armenia	64	○
Israel	63	○
International average	61	
Scotland	59	○
New Zealand	56	○
Tunisia	53	▼
Japan	50	▼
Jordan	49	▼
Palestinian Nat'l Auth.	48	▼
Morocco	47	▼
Philippines	45	▼
Egypt	44	▼
Iran, Islamic Republic of	44	▼
Chile	41	▼
Bahrain	37	▼
Sweden	36	▼
Ghana	28	▼
Botswana	26	▼
Saudi Arabia	22	▼
South Africa	20	▼
Moldova, Republic of	18	▼
Norway	13	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

Content Domain	Main Topic	Cognitive Domain
NUMBER	Whole Numbers	Knowing Facts and Procedures

Which equals 370 times 998 plus 370 times 2

Which of these is equal to $370 \times 998 + 370 \times 2$?

- (A) $370 \times 1,000$
 (B) 372×998
 (C) 740×998
 (D) $370 \times 998 \times 2$

Item Number: M032690

Correct Response:

A

Overall Percent Correct

Singapore	70	▲
Hong Kong, SAR	69	▲
Chinese Taipei	68	▲
Hungary	61	▲
Netherlands	59	▲
Estonia	57	▲
Lebanon	53	▲
Israel	52	▲
Egypt	52	▲
Belgium (Flemish)	50	▲
Russian Federation	49	▲
Australia	49	▲
United States	48	▲
Lithuania	47	▲
Malaysia	47	▲
New Zealand	46	▲
Korea, Republic of	43	○
Romania	43	○
Botswana	41	○
Scotland	40	○
International average	39	
Armenia	38	○
Latvia	38	○
Slovak Republic	38	○
Japan	37	○
Bulgaria	37	○
Moldova, Republic of	37	○
Slovenia	36	○
Italy	35	○
Macedonia, Republic of	34	○
England	34	○
Palestinian Nat'l Auth.	33	▼
Tunisia	31	▼
Philippines	30	▼
Bahrain	28	▼
Cyprus	24	▼
Sweden	23	▼
Serbia and Montenegro	23	▼
Norway	22	▼
Saudi Arabia	22	▼
Morocco	21	▼
South Africa	21	▼
Chile	18	▼
Indonesia	18	▼
Jordan	17	▼
Iran, Islamic Republic of	14	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

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

Arrangements of 4-digit whole numbers

9	1	4	5
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The four digits above are to be arranged from largest to smallest to form a four-digit number. The same four digits are then to be arranged from smallest to largest to form another four-digit number. What is the difference between the two resulting four-digit numbers?

- (A) 3,726
 (B) 4,726
 (C) 8,082
 (D) 8,182
 (E) 8,192

Item Number: M012028

Correct Response:	C
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Overall Percent Correct

Korea, Republic of	92	▲
Singapore	88	▲
Chinese Taipei	87	▲
Hong Kong, SAR	86	▲
Japan	85	▲
Malaysia	79	▲
Latvia	77	▲
Slovenia	75	▲
Belgium (Flemish)	75	▲
Sweden	72	▲
Bulgaria	71	▲
Italy	71	▲
Russian Federation	70	▲
Romania	70	▲
United States	70	▲
Serbia and Montenegro	70	▲
Slovak Republic	69	▲
Estonia	68	▲
Australia	68	▲
Moldova, Republic of	67	▲
Scotland	66	▲
Israel	66	▲
Hungary	65	▲
Lithuania	65	▲
Macedonia, Republic of	64	▲
Netherlands	61	○
England	60	○
International average	59	
Armenia	57	○
New Zealand	56	○
Iran, Islamic Republic of	56	○
Cyprus	55	▼
Egypt	53	▼
Tunisia	52	▼
Jordan	50	▼
Chile	50	▼
Norway	45	▼
Palestinian Nat'l Auth.	41	▼
Lebanon	41	▼
Bahrain	41	▼
Indonesia	40	▼
Philippines	35	▼
Botswana	32	▼
Morocco	30	▼
Ghana	22	▼
South Africa	21	▼
Saudi Arabia	21	▼

Country average vs.
International average:

Higher	▲
Not different	○
Lower	▼

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

Approximate number of magazines sold

About 7,000 copies of a magazine are sold each week. Approximately how many magazines are sold each year?

- (A) 8,400
 (B) 35,000
 (C) 84,000
 (D) 350,000
 (E) 3,500,000

Item Number: M022194

Correct Response:

D

Overall Percent Correct

Korea, Republic of	74	▲
Singapore	74	▲
Chinese Taipei	71	▲
Netherlands	69	▲
Belgium (Flemish)	69	▲
Hong Kong, SAR	68	▲
Australia	67	▲
Hungary	66	▲
Japan	66	▲
Sweden	63	▲
New Zealand	62	▲
Estonia	62	▲
England	61	▲
Slovenia	60	▲
Slovak Republic	59	▲
United States	58	▲
Malaysia	58	▲
Russian Federation	58	▲
Scotland	58	▲
Norway	58	▲
Lithuania	57	▲
Latvia	57	▲
Bulgaria	56	▲
Israel	54	▲
Italy	53	▲
Serbia and Montenegro	50	○
International average	49	
Romania	47	○
Cyprus	47	○
Moldova, Republic of	44	○
Macedonia, Republic of	42	▼
Armenia	39	▼
Indonesia	38	▼
Tunisia	37	▼
Philippines	36	▼
Lebanon	36	▼
Chile	36	▼
Morocco	33	▼
Bahrain	31	▼
Iran, Islamic Republic of	29	▼
Jordan	28	▼
Egypt	23	▼
Saudi Arabia	23	▼
Palestinian Nat'l Auth.	21	▼
South Africa	20	▼
Botswana	19	▼
Ghana	18	▼

Country average vs.
International average:

Higher	▲
Not different	○
Lower	▼

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

The teachers plan to send 6 newsletters per year

The teachers at Parkway School plan to send 6 newsletters per year to each of the 620 families with children at the school. The newsletters each need 2 sheets of paper. The paper is sold in packs of 500 sheets.

What is the least number of packs of paper needed to print the school newsletter for the year?

Answer: _____

Item Number: M032652

SCORING

Correct Response

- 15

Incorrect Response

- 14 or 14.88
- Other incorrect (including crossed out/erased, stray marks, illegible, or off task).

Overall Percent Correct

Armenia	60	▲
Netherlands	57	▲
Singapore	57	▲
Hong Kong, SAR	53	▲
Belgium (Flemish)	46	▲
Japan	44	▲
Chinese Taipei	44	▲
Korea, Republic of	43	▲
United States	36	▲
Hungary	35	▲
Slovak Republic	33	▲
Scotland	32	▲
Estonia	32	▲
Sweden	30	▲
New Zealand	29	▲
Russian Federation	29	▲
Lithuania	29	▲
Australia	28	▲
England	27	○
Slovenia	24	○
Latvia	22	○
International average	21	
Italy	21	○
Bulgaria	20	○
Israel	20	○
Norway	20	○
Cyprus	18	▼
Romania	14	▼
Serbia and Montenegro	13	▼
Macedonia, Republic of	11	▼
Moldova, Republic of	10	▼
Malaysia	8	▼
Chile	8	▼
Tunisia	8	▼
Jordan	4	▼
Lebanon	4	▼
Philippines	3	▼
Indonesia	3	▼
South Africa	3	▼
Iran, Islamic Republic of	3	▼
Bahrain	3	▼
Egypt	3	▼
Palestinian Nat'l Auth.	2	▼
Morocco	1	▼
Botswana	0	▼
Ghana	0	▼
Saudi Arabia	0	▼

Country average vs. International average:

Higher	▲
Not different	○
Lower	▼

The teachers plan to send 6 newsletters per year (continued)

Item Number: M032652

Student Responses

Correct Response:

The teachers at Parkway School plan to send 6 newsletters per year to each of the 620 families with children at the school. The newsletters each need 2 sheets of paper. The paper is sold in packs of 500 sheets.

What is the least number of packs of paper needed to print the school newsletter for the year?

Answer: 15

$$\begin{array}{r}
 620 \\
 \times 12 \\
 \hline
 1240 \\
 6200 \\
 \hline
 7440
 \end{array}$$

$$\begin{array}{r}
 500 \overline{) 7440} \\
 \underline{5000} \\
 2440 \\
 \underline{2500} \\
 40
 \end{array}$$

Incorrect Response:

The teachers at Parkway School plan to send 6 newsletters per year to each of the 620 families with children at the school. The newsletters each need 2 sheets of paper. The paper is sold in packs of 500 sheets.

What is the least number of packs of paper needed to print the school newsletter for the year?

Answer: 3 packs of 500

$$\begin{array}{r}
 620 \\
 \times 2 \\
 \hline
 1240
 \end{array}$$

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

Garden with 14 rows of 20 plants each

A garden has 14 rows. Each row has 20 plants. The gardener then plants 6 more rows with 20 plants in each row.

How many plants are now there altogether?

Answer: _____

Item Number: M032671

SCORING

Correct Response

- 400 or equivalent.

Incorrect Response

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

Overall Percent Correct

Singapore	91	▲
Netherlands	88	▲
Hong Kong, SAR	87	▲
Belgium (Flemish)	86	▲
Korea, Republic of	85	▲
Estonia	85	▲
Chinese Taipei	83	▲
Sweden	82	▲
Malaysia	81	▲
United States	78	▲
Latvia	78	▲
Russian Federation	78	▲
New Zealand	77	▲
Australia	76	▲
England	75	▲
Hungary	72	▲
Israel	72	▲
Lithuania	72	▲
Scotland	71	▲
Italy	71	▲
Slovenia	67	▲
Moldova, Republic of	66	▲
Cyprus	66	▲
Romania	65	▲
Bulgaria	63	○
Slovak Republic	63	○
Japan	61	○
Chile	61	○
Serbia and Montenegro	61	○
International average	61	
Norway	60	○
Macedonia, Republic of	56	▼
Indonesia	49	▼
Tunisia	48	▼
Armenia	47	▼
Iran, Islamic Republic of	44	▼
Lebanon	43	▼
Jordan	43	▼
Bahrain	41	▼
Morocco	39	▼
Egypt	36	▼
Philippines	35	▼
Palestinian Nat'l Auth.	33	▼
Botswana	28	▼
Saudi Arabia	23	▼
South Africa	18	▼
Ghana	11	▼

Country average vs.
International average:

Higher	▲
Not different	○
Lower	▼

Garden with 14 rows of 20 plants each (continued)

Item Number: M032671

Student Responses

Correct Response:

A garden has 14 rows. Each row has 20 plants. The gardener then plants 6 more rows with 20 plants in each row.

How many plants are now there altogether?

Answer: 400

Incorrect Response:

A garden has 14 rows. Each row has 20 plants. The gardener then plants 6 more rows with 20 plants in each row.

How many plants are now there altogether?

Answer: 40

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