Tennessee Comprehensive Assessment Program

# TCAP/CRA 2013

**7**

# Anchor Set

## Grade 7 – High and Low Elevations Task

**SECURE MATERIAL - Reader Name:** _____
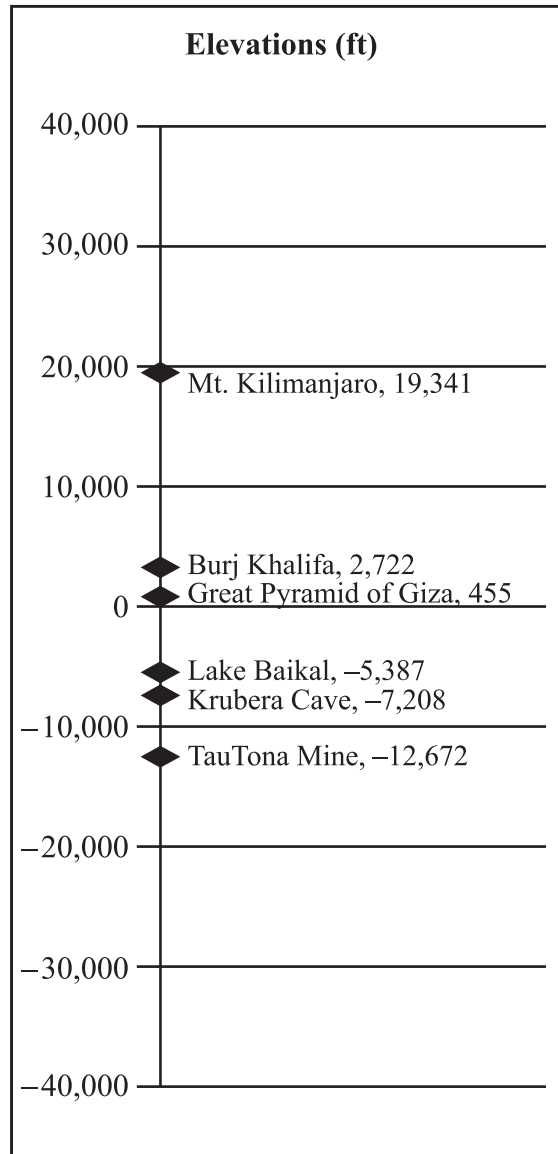
**Tennessee Comprehensive Assessment Program**

**High and Low Elevations Task**

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

```
40,000 ──────────────────

30,000 ──────────────────

20,000 ◆─────────────────
        Mt. Kilimanjaro, 19,341

10,000 ──────────────────

        ◆ Burj Khalifa, 2,722
     0 ◆ Great Pyramid of Giza, 455

        ◆ Lake Baikal, –5,387
        ◆ Krubera Cave, –7,208
–10,000 ──────────────────
        ◆ TauTona Mine, –12,672

–20,000 ──────────────────

–30,000 ──────────────────

–40,000 ──────────────────
```
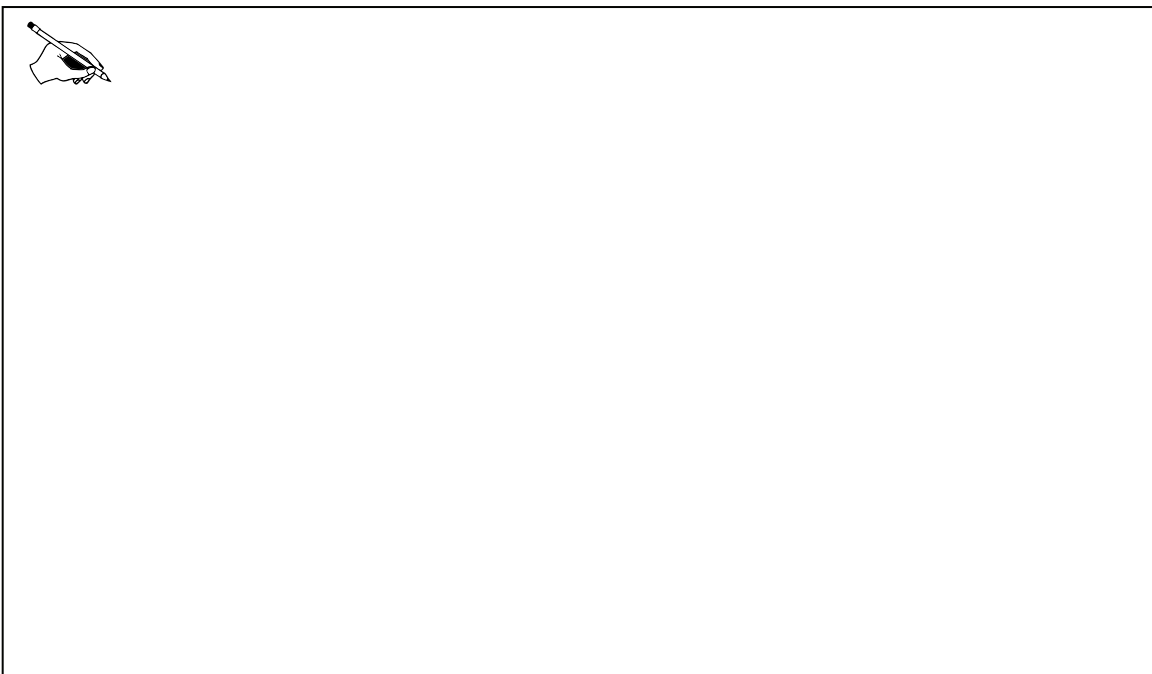
# Constructed Response Assessment

a.      Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

b.      Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

# Scoring Guide

## The CCSS for Mathematical Content (2 points)

7.NS.A.1    Uses a vertical number line to determine the difference in elevation between Mt. Everest and the Marianas Trench.  The student may demonstrate this in any of the following ways:

- Summing the distance from 0 of each point;
- Counting by a consistent increment from one point to the other and making adjustments as necessary.

**(1 Point)**

7.NS.A.1c   Writes two equivalent expressions.  The following are correct expressions; students may meet the content standard even if they use numbers that do not reflect the problem context.

- $29,029 - (-36,069)$
- $29,029 + 36,069$
- $29,029 + |-36,069|$
- $|29,029 - (-36,069)|$
- $|(-36,069) - 29,029|$

**(1 Point)**

## The CCSS for Mathematical Practice (2 points)

MP1    Completes all parts of the problem by plotting points and interpreting the number line and recognizes that the difference in elevations is the same regardless of the method used to calculate. **(1 Point)**
(MP1: Make sense of problems and persevere in solving them.)

MP6    Numerical expressions and all calculations are correct, mathematical language and notation is precise (when used), and uses correct numbers to represent the elevations. **(1 Point)**
(MP6:  Attend to precision.)

**TOTAL POINTS: 4**

## The CCSS for Mathematical Content Addressed In This Task

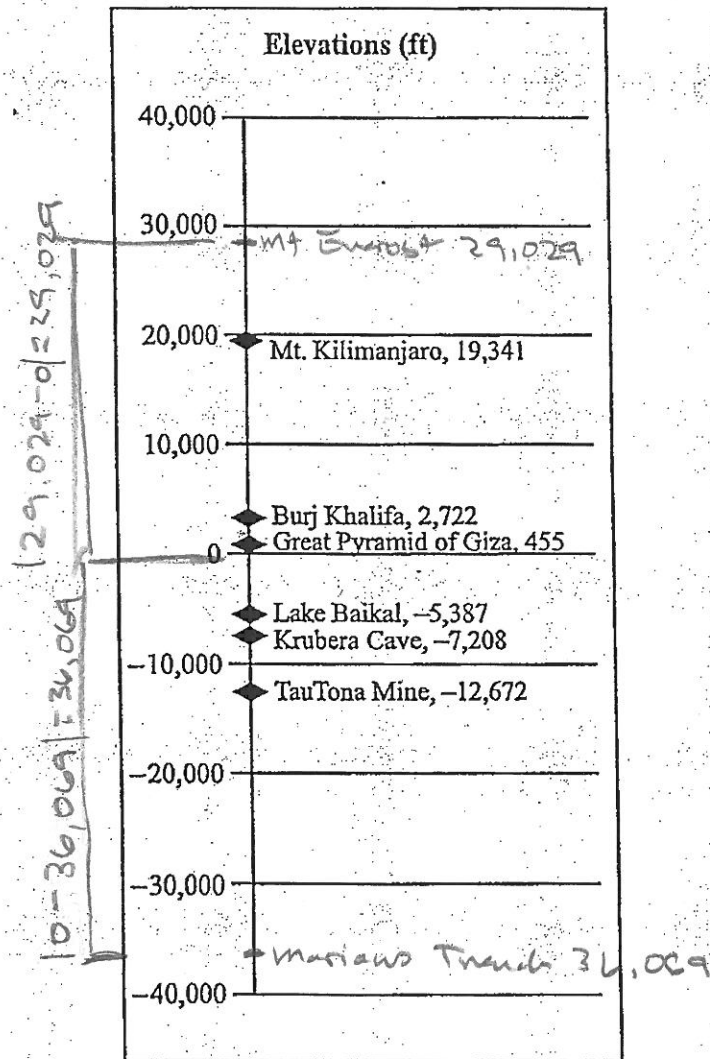| **Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.** | |
|---|---|
| 7.NS.A.1 | Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. |
| 7.NS.A.1c | Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. |

| **The CCSS for Mathematical Practice*** |
|---|
| 1. Make sense of problems and persevere in solving them. |
| 2. Reason abstractly and quantitatively. |
| 3. Construct viable arguments and critique the reasoning of others. |
| 4. Model with mathematics. |
| 5. Use appropriate tools strategically. |
| 6. Attend to precision. |
| 7. Look for and make use of structure. |
| 8. Look for and express regularity in repeated reasoning. |
| * Gray type indicates Mathematical Practices not addressed in this assessment. |

### 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.



Elevations (ft)

| Elevation | Feature |
|---|---|
| 40,000 | |
| 30,000 | Mt. Everest 29,029 |
| 20,000 | Mt. Kilimanjaro, 19,341 |
| 10,000 | |
| 0 | Burj Khalifa, 2,722 / Great Pyramid of Giza, 455 |
| | Lake Baikal, –5,387 |
| | Krubera Cave, –7,208 |
| –10,000 | TauTona Mine, –12,672 |
| –20,000 | |
| –30,000 | |
| –40,000 | Marianas Trench 36,069 |

*(handwritten notes: |29,029 – 0| = 29,029 ; |0 – 36,069| = 36,069)*

**A-1b**

a. Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

From
Mt Everest to 0 is 29,029 ft.

From 0 to Marianas Trench is
36,069 ft.

So, total difference is  29,029
+ 36,069
65098 ft

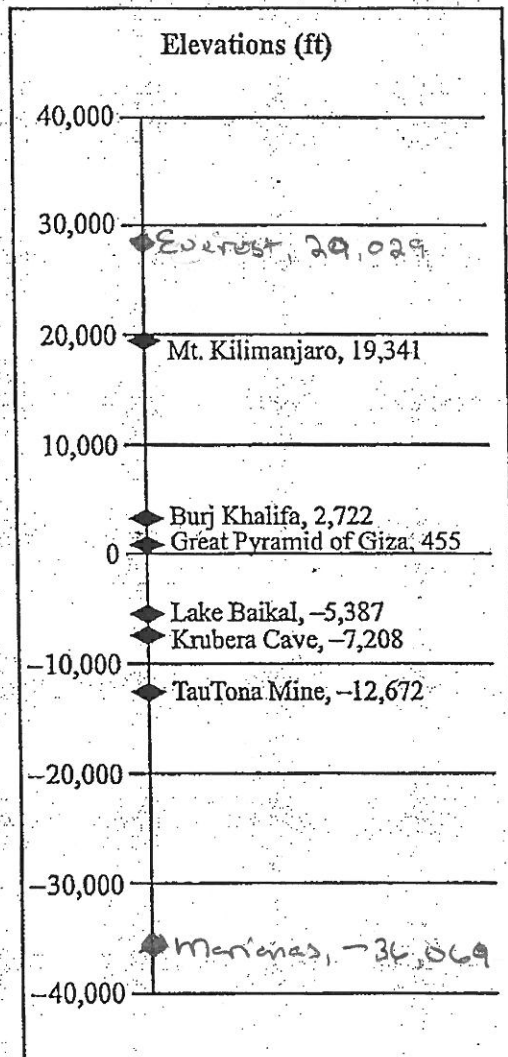b. Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.
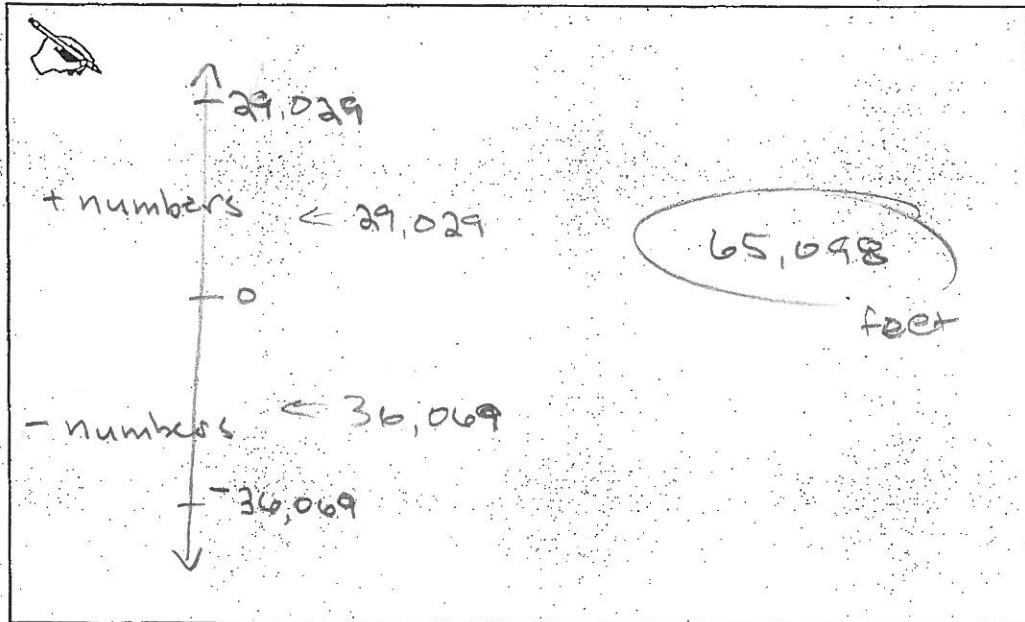
29,029 + 36,069 ← addition

29,029 − (−36,069) ← subtraction

Anchor 1              Litho 00027200012

Total Content Points:  2       (7.NS.A.1, 7.NS.A.1c)

Total Practice Points:  2       (MP1, MP6)

The student correctly determines the difference in elevations between Mt. Everest and the Marianas Trench in Part A (7.NS.A.1). In Part B, the student writes two different expressions, one using addition and one using subtraction of a negative number. The expressions can be used to find the difference in elevation between the two points (7.NS.A.1c). The student plots points for Mt. Everest and the Marianas Trench on the vertical number line given in the prompt and completes both parts of the task (MP1). The calculation shown in Part A is accurate, and mathematical language and notation is precise throughout the response (MP6).

Total Awarded Points: 4 out of 4

### 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

| Elevation | Feature |
|---|---|
| 40,000 | |
| 30,000 | Everest, 29,029 |
| 20,000 | Mt. Kilimanjaro, 19,341 |
| 10,000 | |
| 0 | Burj Khalifa, 2,722 |
| | Great Pyramid of Giza, 455 |
| | Lake Baikal, −5,387 |
| | Krubera Cave, −7,208 |
| −10,000 | TauTona Mine, −12,672 |
| −20,000 | |
| −30,000 | |
| | Marianas, −36,069 |
| −40,000 | |

Litho#: 00107200012

6

a.  Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

29,029

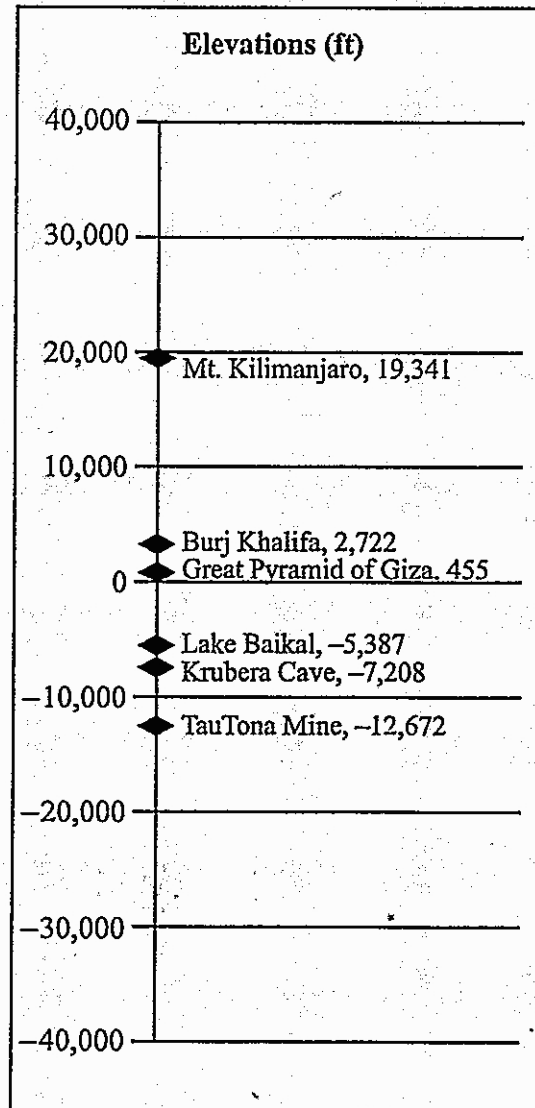+ numbers   ← 29,029

0

- numbers   ← 36,069

-36,069

65,098

feet

b.  Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.
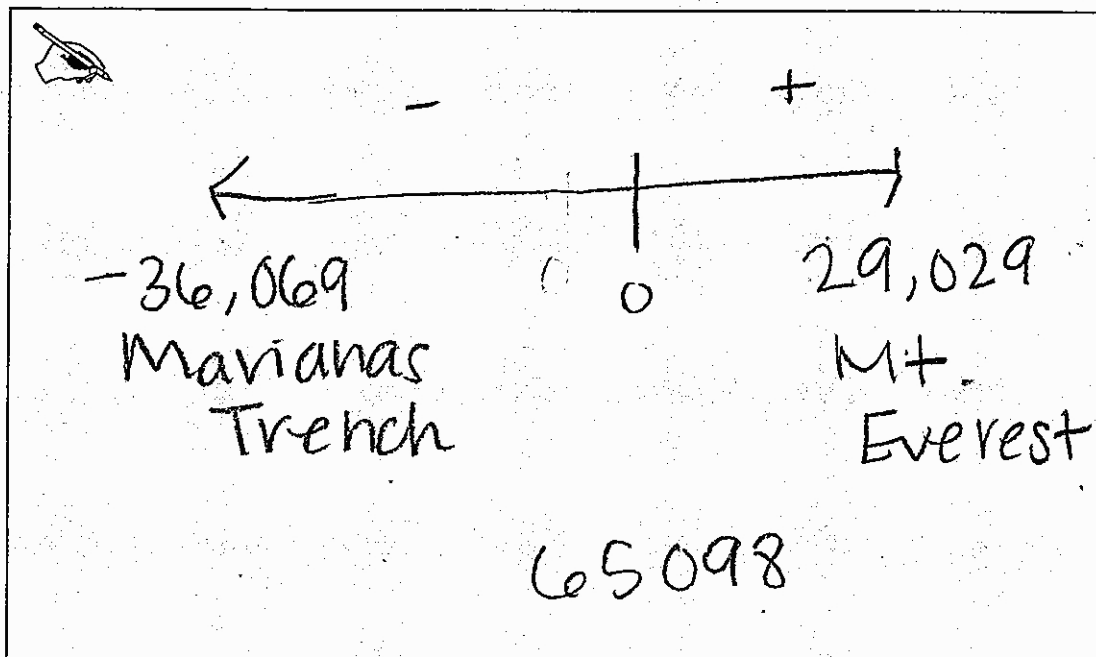
$$\begin{array}{r} 29,029 \\ + 36,069 \\ \hline 65,098 \end{array}$$

$$\begin{array}{r} 36,069 \\ + 29,029 \\ \hline 65,098 \end{array}$$

7

Anchor 2                          Litho 00107200012

Total Content Points:  1          (7.NS.A.1)

Total Practice Points:  2          (MP1, MP6)

The student correctly determines the difference in elevations between Mt. Everest and the Marianas Trench in Part A (7.NS.A.1). In Part B, the student writes two expressions to illustrate how to find the difference in elevations, but the expressions are not essentially different (the student adds the same two numbers, only in a different order). Neither expression uses subtraction (no credit for 7.NS.A.1c). While the two expressions in Part B are not different, showing two expressions indicates that the student has addressed all parts of the problem (MP1). The student has correctly plotted points, accurately worked out the given equations, and labeled the answer in Part A, which combined indicate sufficient attention to precision in the response (MP6).

Total Awarded Points: 3 out of 4

## 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

40,000

30,000

20,000 — Mt. Kilimanjaro, 19,341

10,000

Burj Khalifa, 2,722
0 — Great Pyramid of Giza, 455

Lake Baikal, −5,387
Krubera Cave, −7,208
−10,000 — TauTona Mine, −12,672

−20,000

−30,000

−40,000

Litho#: 0075

a. Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

$-36,069$ Marianas Trench

$0$

$29,029$ Mt. Everest

$65098$

b. Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

$$29029 - {}^-36069 = ?$$

$65098$

$$29029 + 36069 = ?$$

$65098$

Anchor 3                          Litho 0075

Total Content Points: 2          (7.NS.A.1, 7.NS.A.1c)

Total Practice Points: 0

The student correctly determines the difference in elevation between Mt. Everest and the Marianas Trench in Part A (7.NS.A.1). In Part B, the student writes two equivalent expressions that can be used to find the difference in elevation. One of the expressions uses subtraction (7.NS.A.1c). The student does not plot points and does not complete all parts of the problem (no credit for MP1). By not plotting points, the student fails to provide enough work to demonstrate precision (no credit for MP6).

Total Awarded Points: 2 out of 4

### 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.



**Elevations (ft)**

- Mt. Kilimanjaro, 19,341
- Burj Khalifa, 2,722
- Great Pyramid of Giza, 455
- Lake Baikal, –5,387
- Krubera Cave, –7,208
- TauTona Mine, –12,672

Litho#: 0025

a. Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

29,029 Mt. Everest

0

-36,069 Marianas Trench

$P - N = P$

$29,029$
$\underline{\textcircled{\pm}\ 36,069}$
$65,088$ is the distance/difference between

b. Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

$29,029 - (-36,069)$

$29,029 + 36,069$

Litho#: 0025

Anchor 4                    Litho 0025

Total Content Points: 1        (7.NS.A.1c)

Total Practice Points: 1       (MP1)

The student does not correctly determine the difference in elevation in Part A (no credit for 7.NS.A.1). In Part B, the student writes two equivalent expressions which can be used to find the difference in elevation. One of the expressions uses subtraction (7.NS.A.1c). The student completes all parts of the problem by plotting points, correctly interpreting the number line by placing the Marianas Trench below sea level, providing an answer to Part A, and giving two expressions—one of which uses subtraction— in Part B (MP1). The student makes an addition error in Part A (29,029 + 36,069 = 65,088), showing a lack of precision (no credit for MP6).
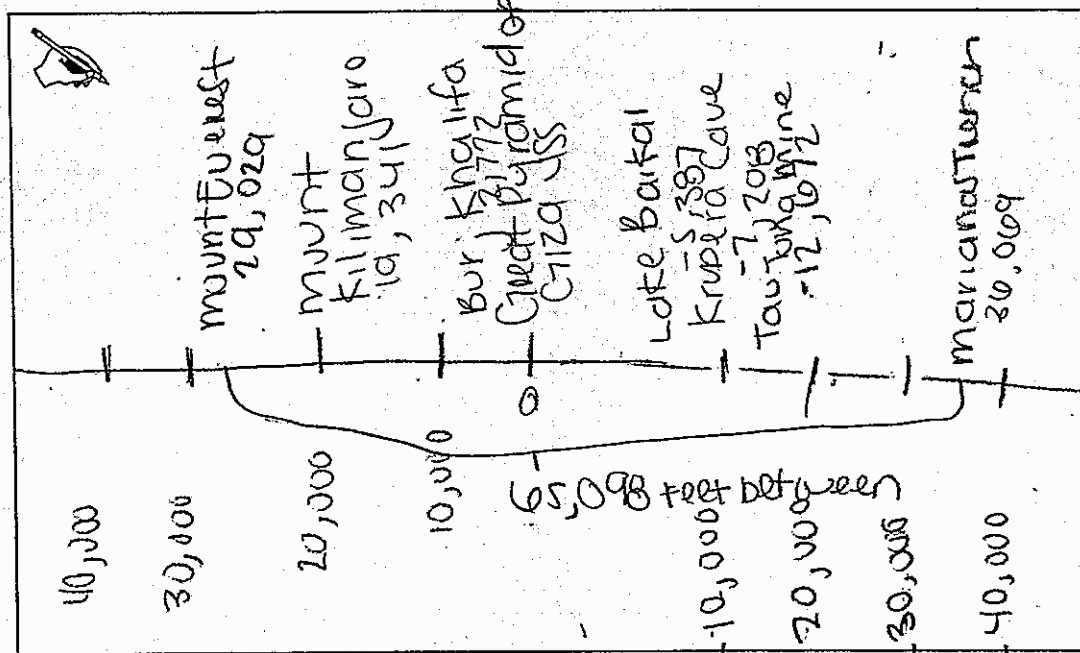
Total Awarded Points: 2 out of 4

### 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

```
40,000 ─────────────────

30,000 ─────────────────

20,000 ─◆─ Mt. Kilimanjaro, 19,341

10,000 ─────────────────

          ◆ Burj Khalifa, 2,722
     0 ─◆─ Great Pyramid of Giza, 455

          ◆ Lake Baikal, −5,387
          ◆ Krubera Cave, −7,208
−10,000 ─◆─ TauTona Mine, −12,672

−20,000 ─────────────────

−30,000 ─────────────────

−40,000 ─────────────────
```

a. Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

Mount Everest 29,029
Mount Kilimanjaro 19,341
Burj Khalifa 2,722
Great Pyramid of Giza 455
Lake Baikal -5,387
Krubera Cave -7,208
Tau Tona Mine -12,892
Marianas Trench -36,069

65,098 feet between

40,000
30,000
20,000
10,000
0
-10,000
-20,000
-30,000
-40,000
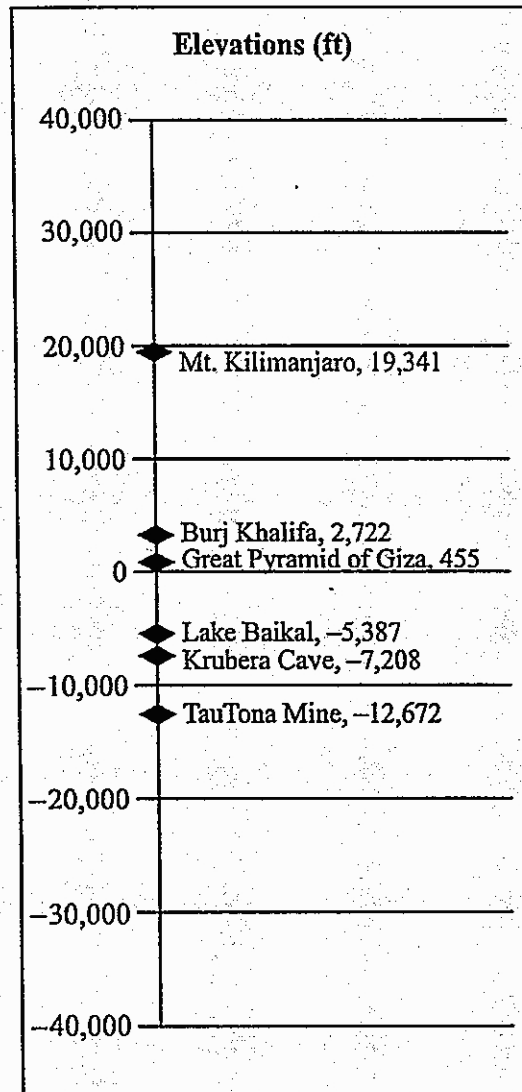
b. Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

①

A – B = 65,098

A = Mount Everest
B = Mariana Trench

②
$$\begin{array}{r} 29,029 \\ -36,069 \\ \hline 65,098 \end{array}$$

Anchor 5                    Litho 00447200012

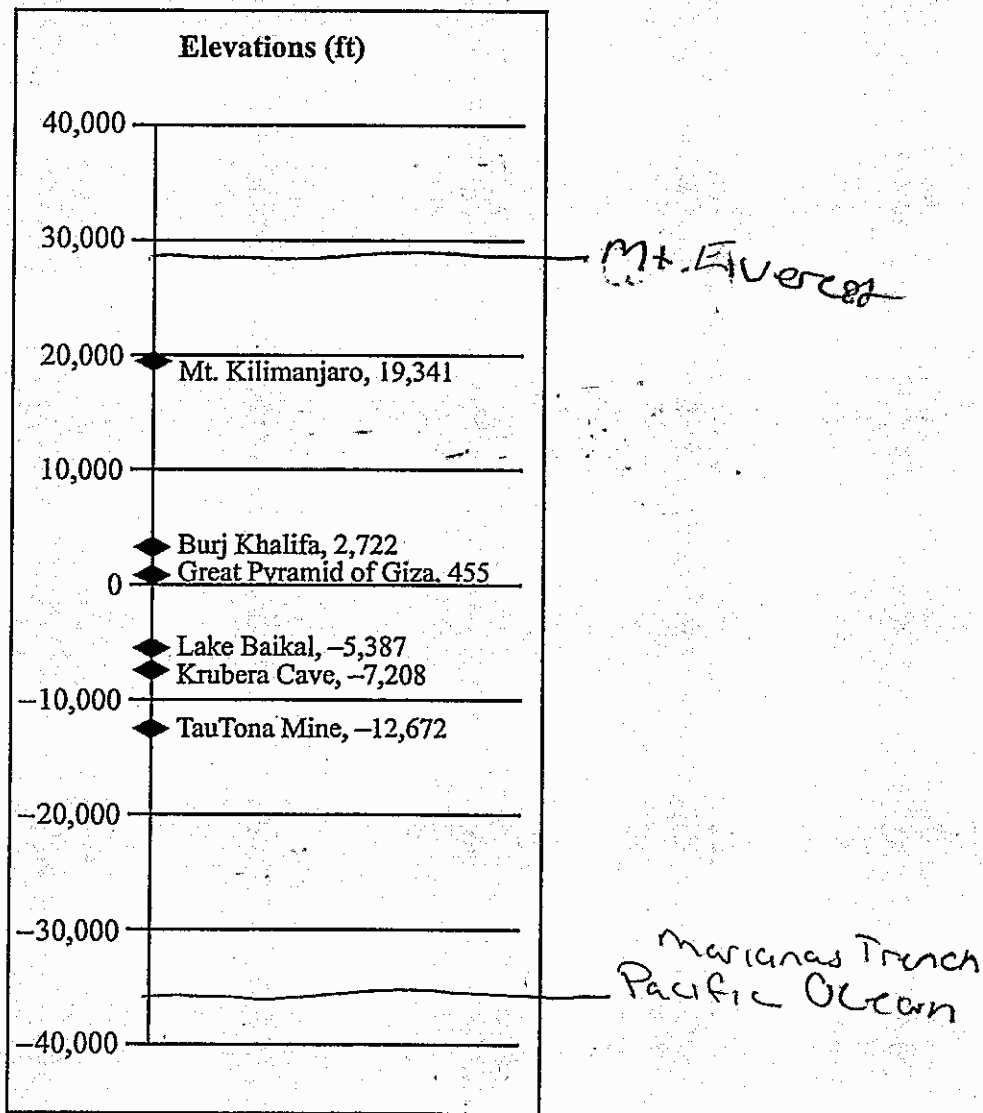Total Content Points: 1        (7.NS.A.1)

Total Practice Points: 1       (MP1)

The student correctly determines the difference in elevations in Part A (7.NS.A.1). In Part B, the student does not write two equivalent expressions which can be used to find the difference. The first expression, A − B = 65,098, is merely a different way of stating 29,029 –(–36,069) = 65,098 (no credit for 7.NS.A.1c). The student completes all parts of the problem, plotting points with the Marianas Trench located below sea level, providing an answer for Part A, and giving two expressions—one involving subtraction—in Part B (MP1). The student labels the elevation of the Marianas Trench as 36,069, leaving off the negative sign, which shows a lack of precision (no credit for MP6).

Total Awarded Points: 2 out of 4

### 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

```
 40,000 ─┬────────────
         │
 30,000 ─┤──────────────  ───── Mt. Everest
         │
 20,000 ─┤◆ Mt. Kilimanjaro, 19,341
         │
 10,000 ─┤────────────
         │
         │◆ Burj Khalifa, 2,722
      0 ─┤◆ Great Pyramid of Giza, 455
         │
         │◆ Lake Baikal, −5,387
         │◆ Krubera Cave, −7,208
−10,000 ─┤
         │◆ TauTona Mine, −12,672
         │
−20,000 ─┤────────────
         │
−30,000 ─┤────────────
         │────────────  ───── Marianas Trench
−40,000 ─┴────────────        Pacific Ocean
```

a.   Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

$$36,069$$
$$-29,029$$
$$7,040$$

b.   Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

① $$36,069$$
$$-29,029$$
$$7,040$$

② $$36,069$$
$$+29,029$$
$$65,098$$

Anchor 6                                Litho 0005

Total Content Points: 0

Total Practice Points: 2         (MP1, MP6)

The student does not correctly determine the difference in elevation in Part A (no credit for 7.NS.A.1). In Part B, the student does not write two equivalent expressions (no credit for 7.NS.A.1c). The student completes all parts of the problem, plotting points with the Marianas Trench located below sea level, providing an answer in Part A, and giving two expressions—one using subtraction—in Part B (MP1). All calculations are correct, and mathematical notation is precise (MP6).
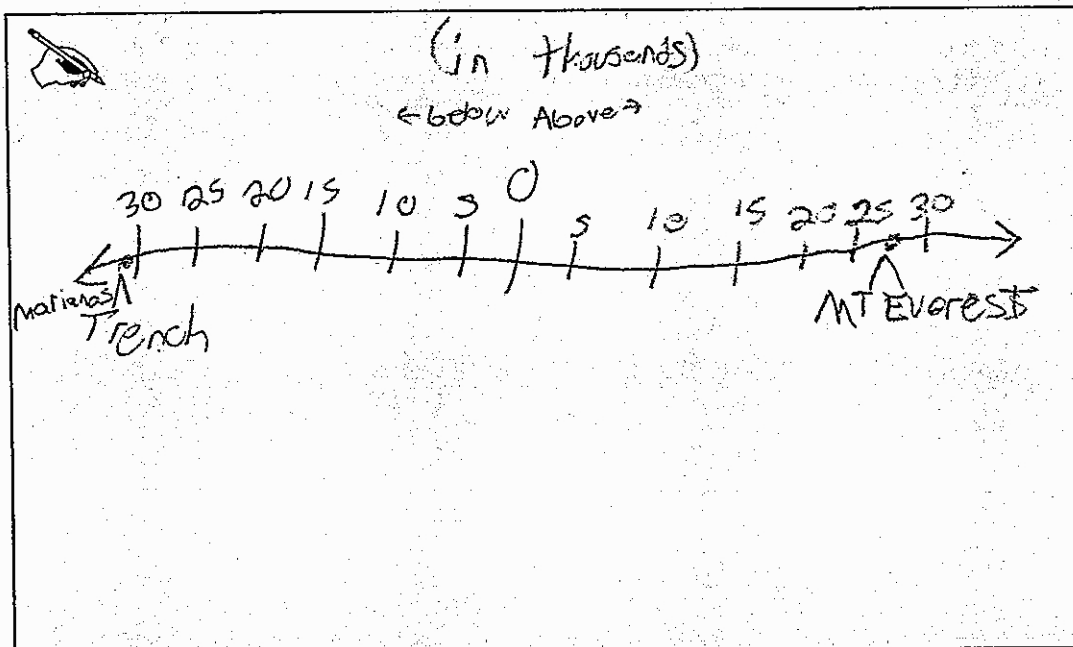
Total Awarded Points: 2 out of 4

## 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

| Elevation | Feature |
|---|---|
| 40,000 | |
| 30,000 | |
| 20,000 | Mt. Kilimanjaro, 19,341 |
| 10,000 | |
| | Burj Khalifa, 2,722 |
| 0 | Great Pyramid of Giza, 455 |
| | Lake Baikal, −5,387 |
| | Krubera Cave, −7,208 |
| −10,000 | TauTona Mine, −12,672 |
| −20,000 | |
| −30,000 | |
| −40,000 | |

a. Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

(in thousands)

←below  Above→

30 25 20 15  10  5  0  5  10  15 20 25 30
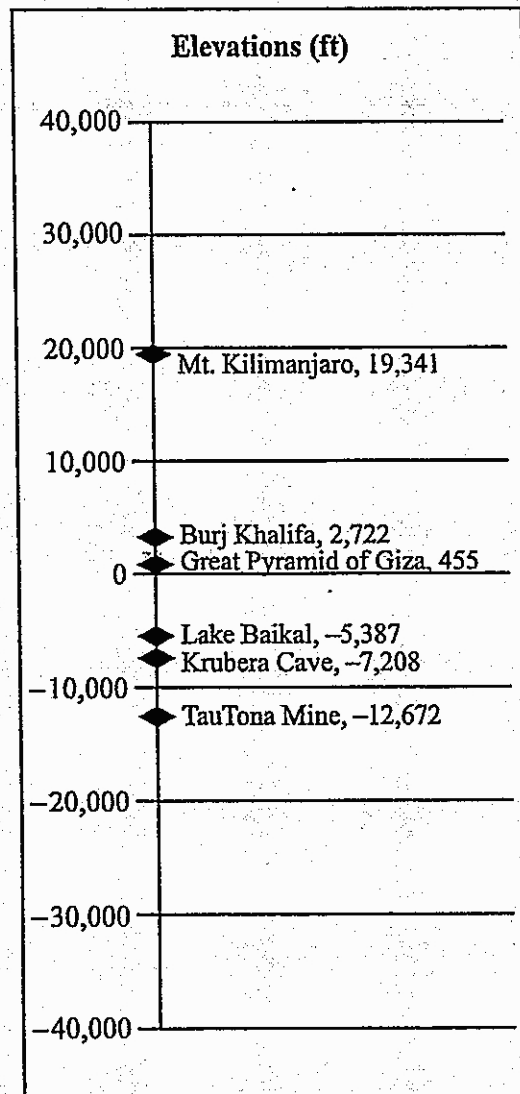
Marianas Trench                              Mt Everest

b. Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

29,029 above (Everest)

36,069

−36,069 below (Trench)

65,098

Litho#: 00397200012

Anchor 7                    Litho 00397200012

Total Content Points: 1        (7.NS.A.1)

Total Practice Points: 0

The student correctly determines the difference in elevation for Part A, writing the answer in the box for Part B (7.NS.A.1). In Part B, the student writes only one expression that can be used to find the difference (no credit for 7.NS.A.1c). The student does not complete all parts of the problem, writing only one expression in Part B (no credit for MP1). The student shows a lack of precision by plotting the Marianas Trench, with an elevation of –36,069 feet, just below –30,000 on the number line (no credit for MP6).
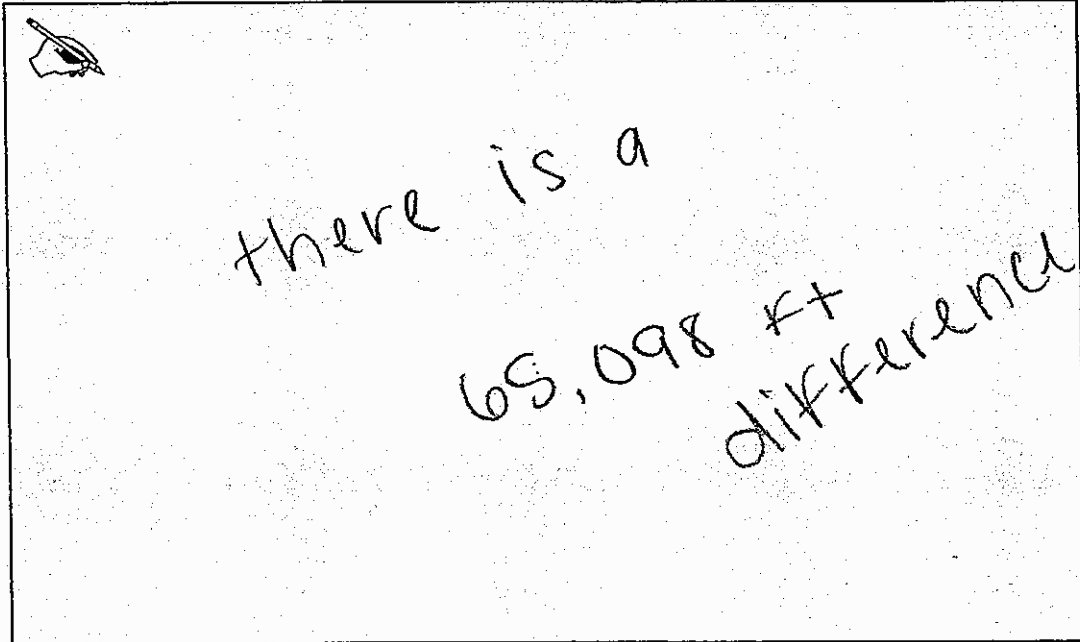
Total Awarded Points: 1 out of 4

## 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.
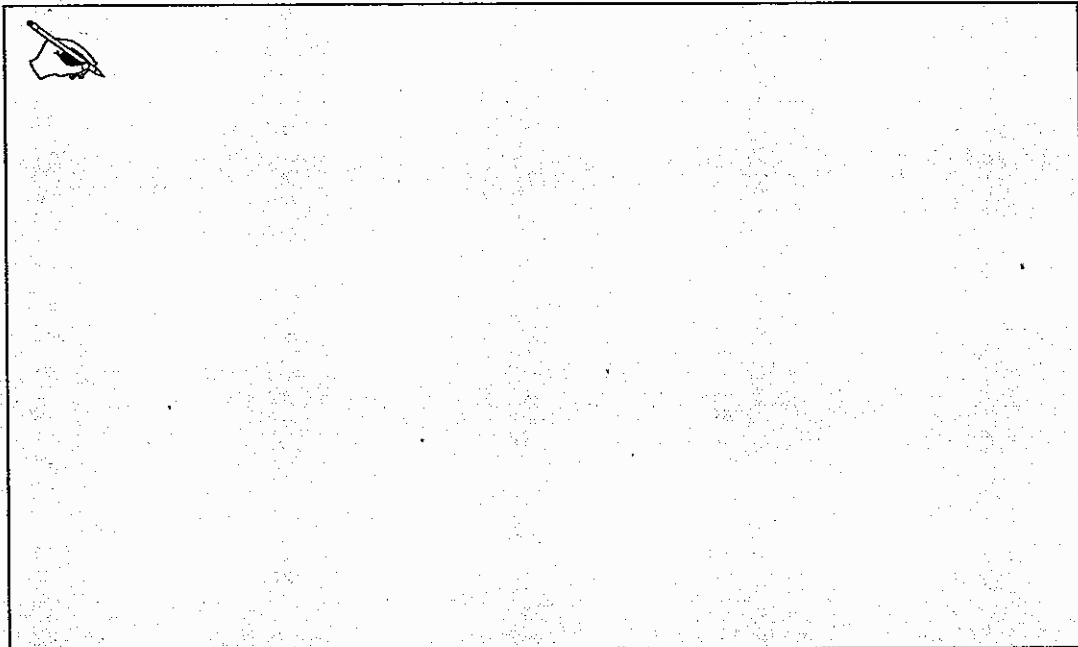
**Elevations (ft)**

| Elevation | Feature |
|---|---|
| 40,000 | |
| 30,000 | |
| 20,000 | Mt. Kilimanjaro, 19,341 |
| 10,000 | |
| | Burj Khalifa, 2,722 |
| 0 | Great Pyramid of Giza, 455 |
| | Lake Baikal, −5,387 |
| | Krubera Cave, −7,208 |
| −10,000 | |
| | TauTona Mine, −12,672 |
| −20,000 | |
| −30,000 | |
| −40,000 | |
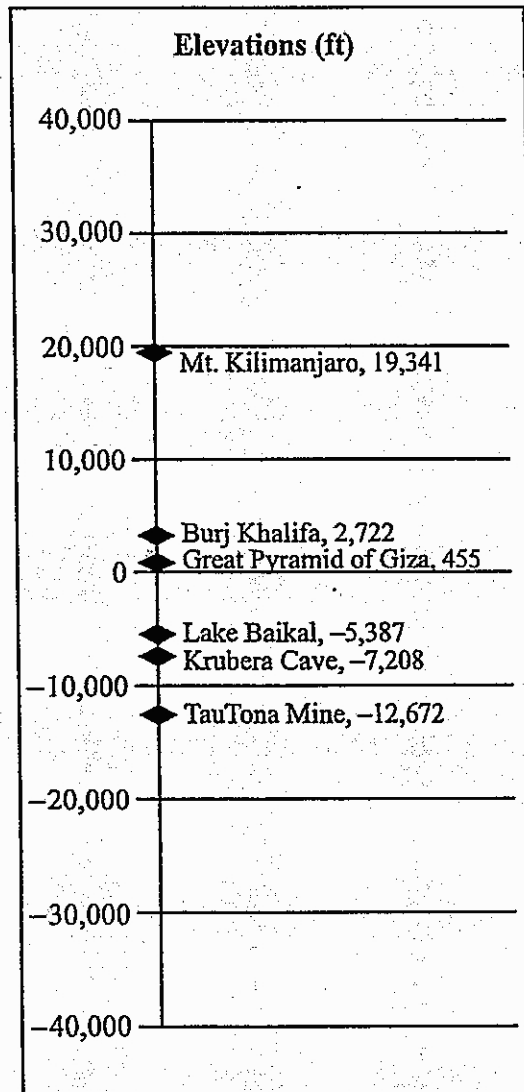
a. Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

there is a
65,098 ft
difference.

b. Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

Anchor 8      Litho 00507200012
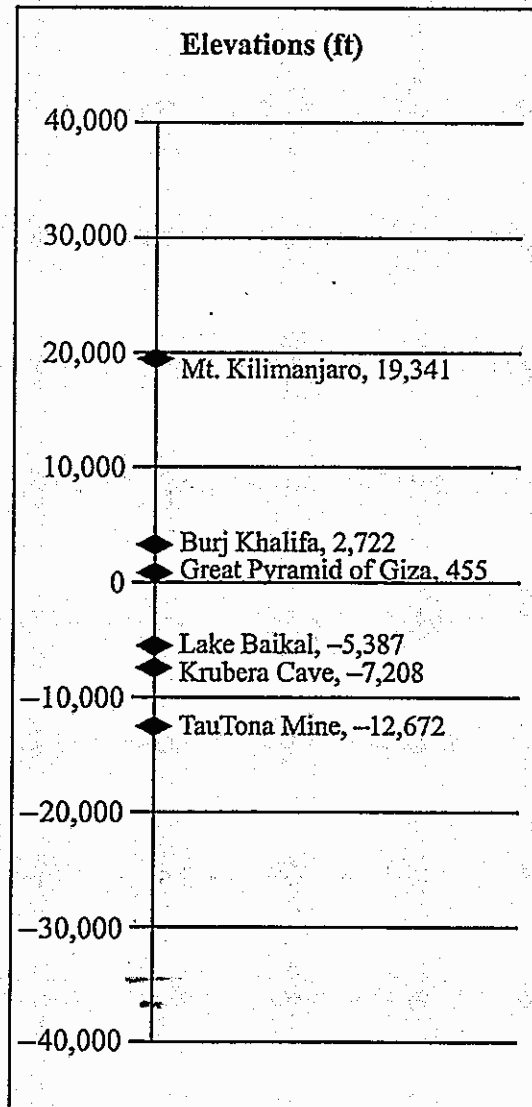
Total Content Points: 1  (7.NS.A.1)

Total Practice Points: 0

The student correctly determines the difference in elevation in Part A (7.NS.A.1). In Part B, the student does not write two equivalent expressions (no credit for 7.NS.A.1c). The student does not complete all parts of the problem, failing to plot points or provide any expressions in Part B (no credit for MP1). The student provides insufficient work to demonstrate precision (no credit for MP6).

Total Awarded Points: 1 out of 4

## 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

- 40,000
- 30,000
- 20,000 — Mt. Kilimanjaro, 19,341
- 10,000
- Burj Khalifa, 2,722
- 0 — Great Pyramid of Giza, 455
- Lake Baikal, −5,387
- Krubera Cave, −7,208
- −10,000 — TauTona Mine, −12,672
- −20,000
- −30,000
- −40,000

Litho#: 0063

a. Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

Mt. Everest → 29,029 feet above sea level

Marianas trench → 36,069 feet below sea level

65,098 is the difference between the two of them.

b. Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

$29,029 - m = 65098$

or



Litho#: 0063

Anchor 9                    Litho 0063

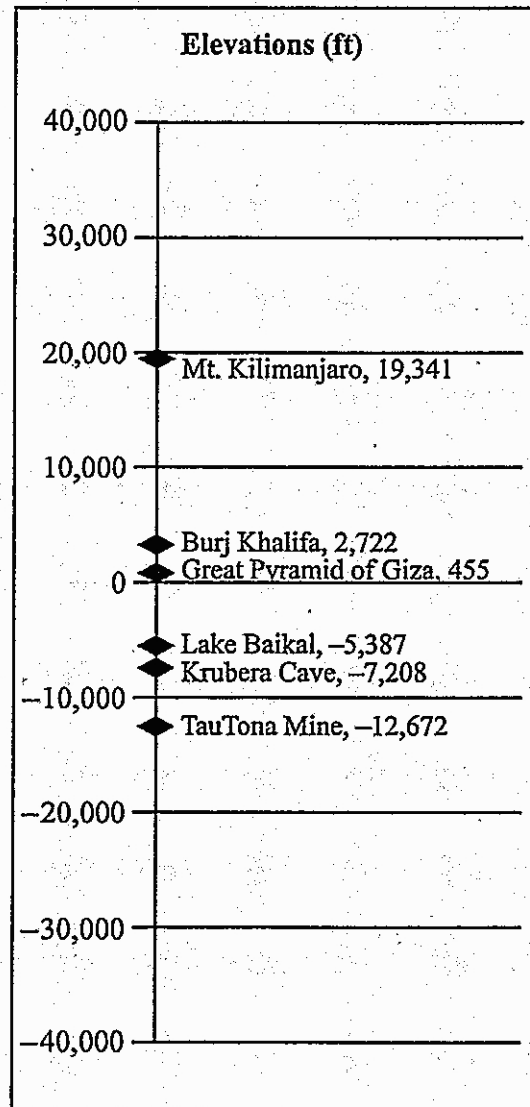Total Content Points: 1        (7.NS.A.1)

Total Practice Points: 0

The student correctly determines the difference in elevation in Part A (7.NS.A.1). In Part B, the student does not write two equivalent expressions (no credit for 7.NS.A.1c). The student does not complete all parts of the problem, failing to plot points and providing only one expression in Part B (no credit for MP1). Failing to plot the points also shows insufficient mathematical notation to demonstrate precision (no credit for MP6).
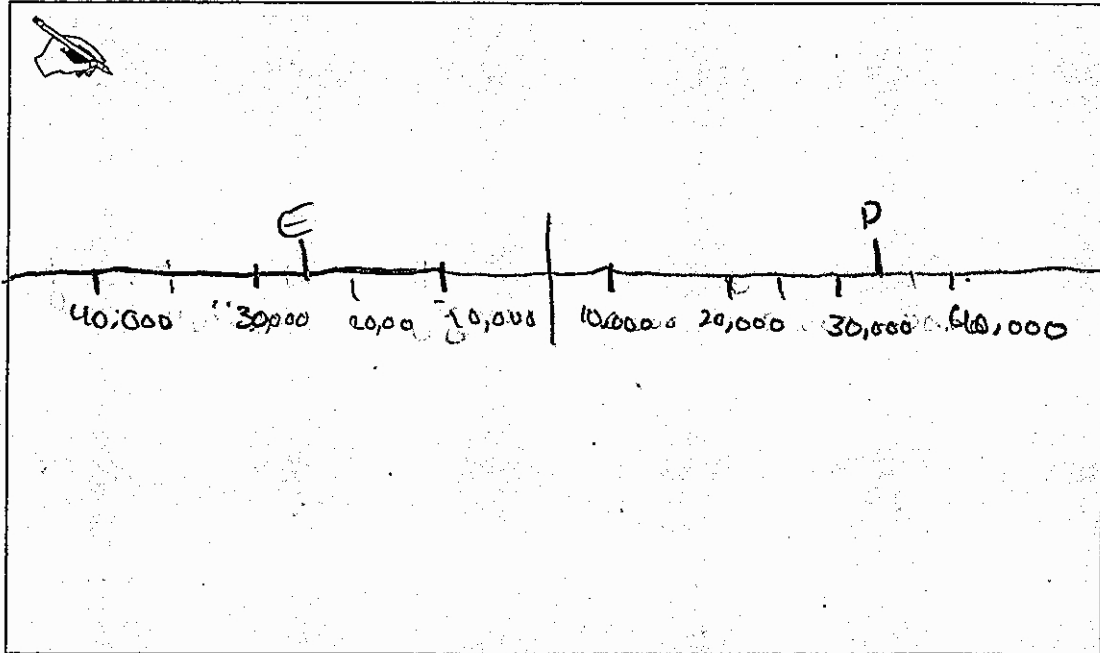
Total Awarded Points: 1 out of 4

## 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

| Elevation | Feature |
|---|---|
| 40,000 | |
| 30,000 | |
| 20,000 | Mt. Kilimanjaro, 19,341 |
| 10,000 | |
| | Burj Khalifa, 2,722 |
| 0 | Great Pyramid of Giza, 455 |
| | Lake Baikal, −5,387 |
| | Krubera Cave, −7,208 |
| −10,000 | TauTona Mine, −12,672 |
| −20,000 | |
| −30,000 | |
| −40,000 | |

Litho#: 0043

a.  Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

E                    p

40,000   30,000   20,00   10,000 | 10,000  20,000   30,000   40,000

b.  Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

$$x - 36,069 = 65,048$$

$$29,029 - x = 65,048$$

Anchor 10             Litho 0043
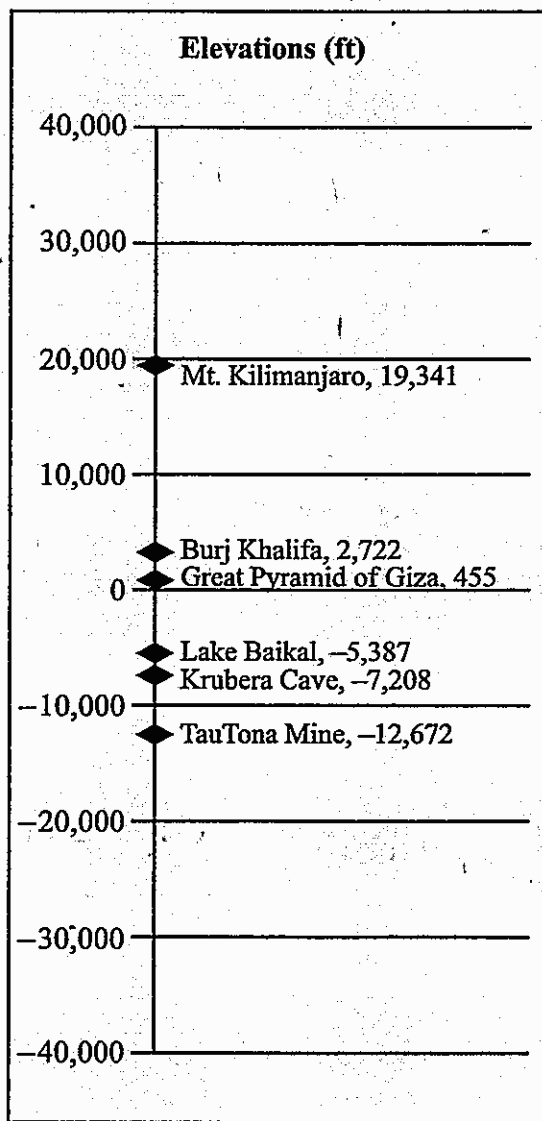
Total Content Points: 1       (7.NS.A.1)

Total Practice Points: 0

The student correctly determines the difference in elevation for Part A. The same answer is given in both equations in Part B, making it the student's clear answer to Part A (7.NS.A.1). The student does not write two equivalent expressions in Part B (no credit for 7.NS.A.1c). The plotting of the points is unclear, indicating a failure to interpret the number line (no credit for MP1). That deficiency also shows a lack of precision (no credit for MP6).
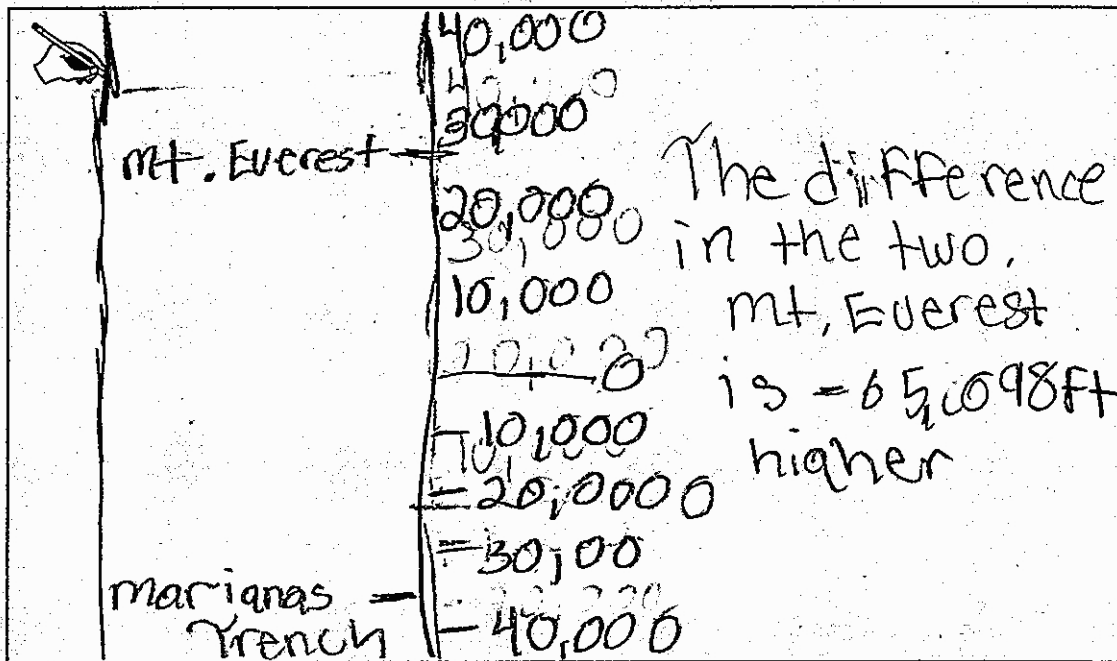
Total Awarded Points: 1 out of 4

## 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

40,000 —

30,000 —

20,000 — Mt. Kilimanjaro, 19,341

10,000 —

Burj Khalifa, 2,722
0 — Great Pyramid of Giza, 455

Lake Baikal, −5,387
Krubera Cave, −7,208
−10,000 — TauTona Mine, −12,672

−20,000 —

−30,000 —

−40,000 —

a. Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

40,000

30,000

Mt. Everest — 30,000

20,000

30,000

10,000

_10,000_

The difference in the two, mt. Everest is -65,098ft higher

-10,000

-20,0000

-30,00

Marianas — -40,000

Trench

b. Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

$-36,069 - 29,029$

$= -65,098$

$-65,098 + 29,029$

$= -36,069$

Anchor 11                    Litho 00057200016
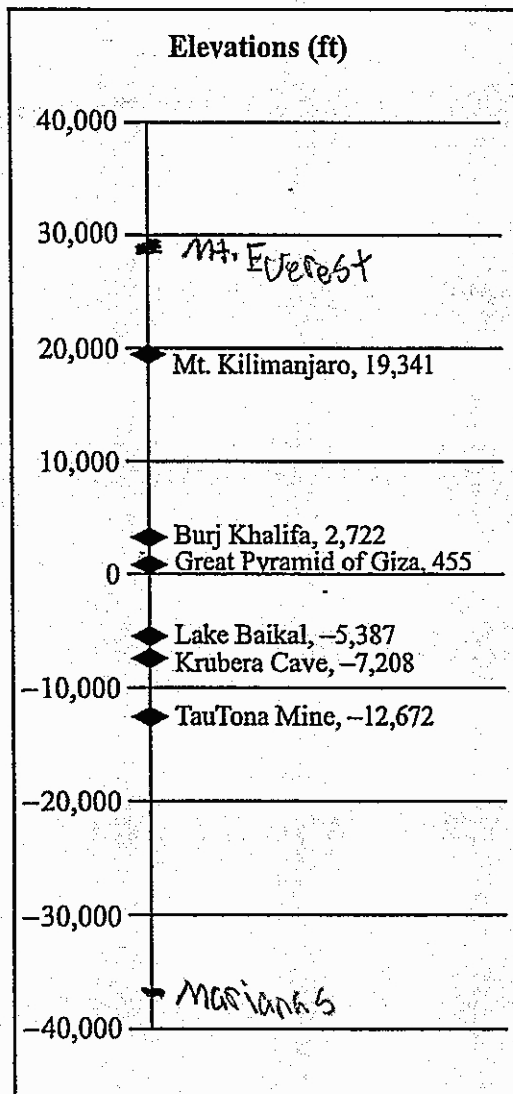
Total Content Points: 0

Total Practice Points: 1        (MP1)

The student does not correctly determine the difference in elevation in Part A (no credit for 7.NS.A.1). In Part B, the student does not write two equivalent expressions (no credit for 7.NS.A.1c). The student completes all parts of the problem, plotting the points with the Marianas Trench located below sea level, providing an answer in Part A, and giving two expressions—one using subtraction—in Part B (MP1). The student uses imprecise mathematical language ("Mt. Everest is –65,098 feet higher") in Part A (no credit for MP6).

Total Awarded Points: 1 out of 4

## 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

```
40,000 ┬

30,000 ┼  ✻  Mt. Everest

20,000 ┼  ◆ Mt. Kilimanjaro, 19,341

10,000 ┼

          ◆ Burj Khalifa, 2,722
     0    ◆ Great Pyramid of Giza, 455

          ◆ Lake Baikal, −5,387
          ◆ Krubera Cave, −7,208
−10,000 ┼ ◆ TauTona Mine, −12,672

−20,000 ┼

−30,000 ┼

          ► Marianas
−40,000 ┴
```

a. Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

Turn to pg. 6 to see

b. Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

$$\begin{array}{r} 36,069 \\ -\ 29,029 \\ \hline 7,040 \end{array} \checkmark$$

$$\begin{array}{r} 36,069 \\ +\ 29,029 \\ \hline 65,098 \end{array} \checkmark$$

$$\begin{array}{r} 36,069 \\ \times\ 29,029 \\ \hline 1047097001 \end{array} \times$$

$$\begin{array}{r} 36,069 \\ \div\ 29,029 \\ \hline 1.24 \end{array} \times$$

Litho#: 00627200012

Anchor 12                         Litho 00627200012
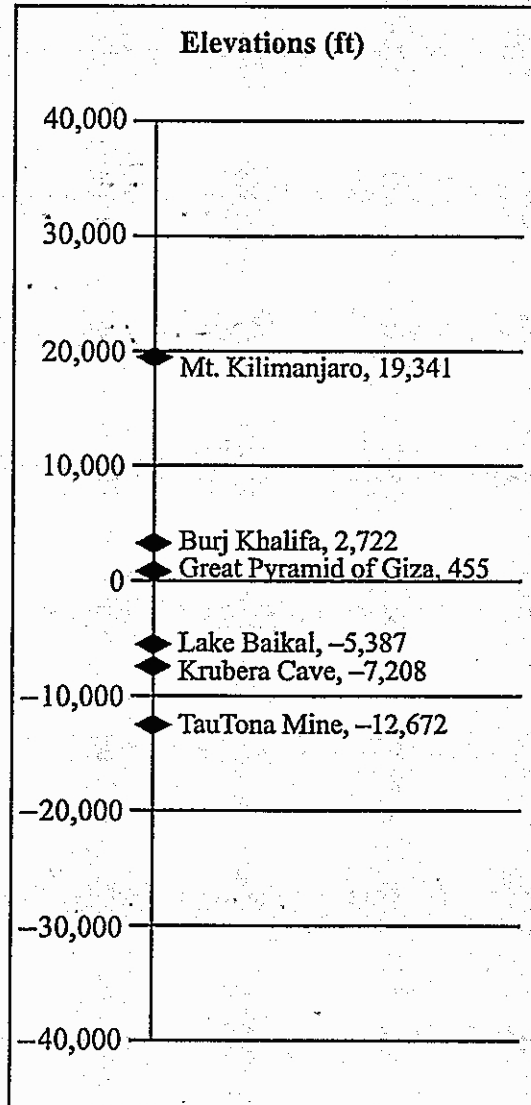
Total Content Points: 0

Total Practice Points: 1           (MP6)

The student does not determine the difference in elevation for Part A. Because multiple answers are given in Part B, it is unknown which of the two checked calculations was meant as an answer to Part A (no credit for 7.NS.A.1). For Part B, the student does not write two equivalent expressions (no credit for 7.NS.A.1c). The student does not complete all parts of the problem, failing to provide a clear answer to Part A (no credit for MP1). All calculations are correct, and while mathematical language is not needed mathematical notation is precise (MP6).
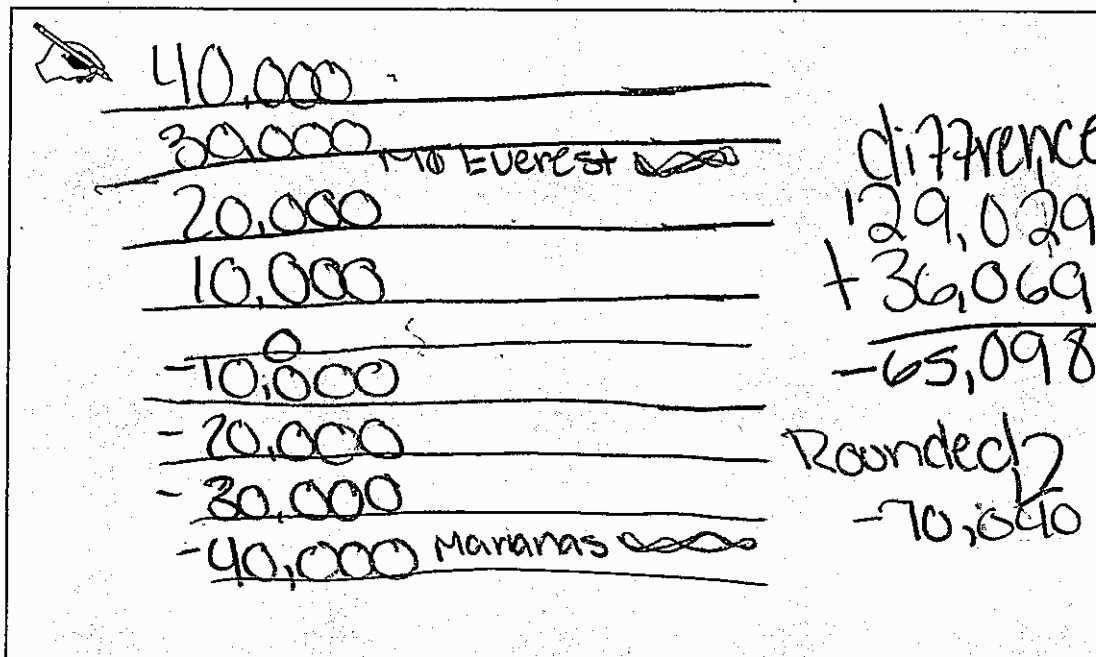
Total Awarded Points: 1 out of 4
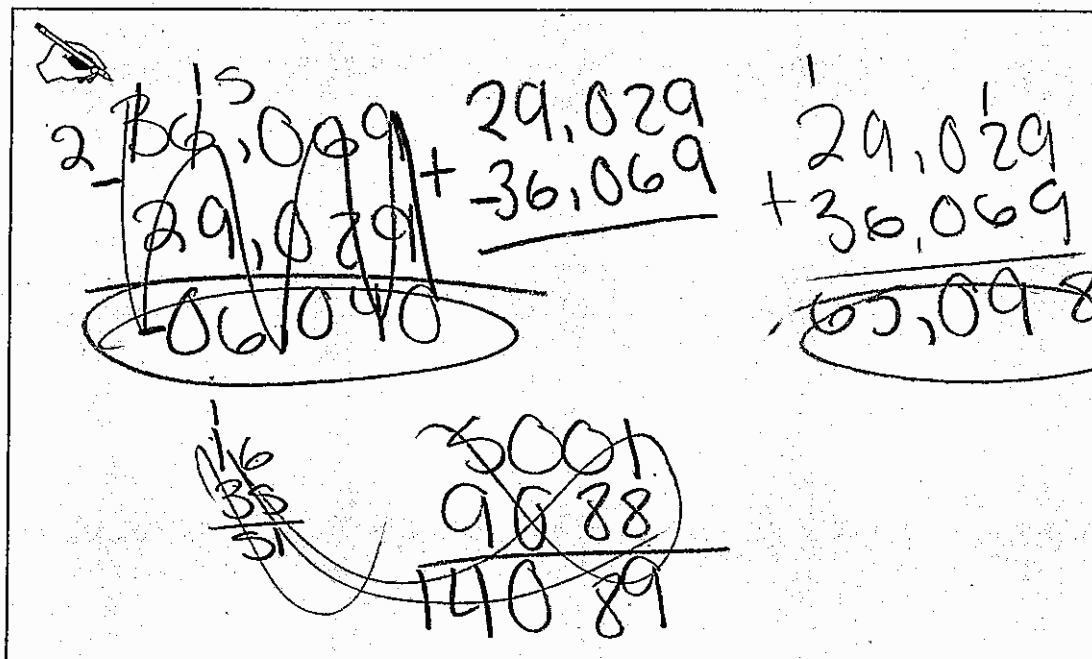
### 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

| Elevation | Feature |
|---|---|
| 40,000 | |
| 30,000 | |
| 20,000 | Mt. Kilimanjaro, 19,341 |
| 10,000 | |
| | Burj Khalifa, 2,722 |
| 0 | Great Pyramid of Giza, 455 |
| | Lake Baikal, –5,387 |
| | Krubera Cave, –7,208 |
| –10,000 | TauTona Mine, –12,672 |
| –20,000 | |
| –30,000 | |
| –40,000 | |

Litho#: 0030

a. Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

40,000

30,000    Mt Everest

20,000

10,000

0

-10,000

-20,000

-30,000

-40,000    Marianas

diffrence

$29,029$
$+ 36,069$
$-65,098$

Rounded
$-70,040$

b. Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

$29,029$
$+ -36,069$
$-65,098$

$29,029$
$+ 36,069$
$65,098$

Anchor 13                    Litho 0030
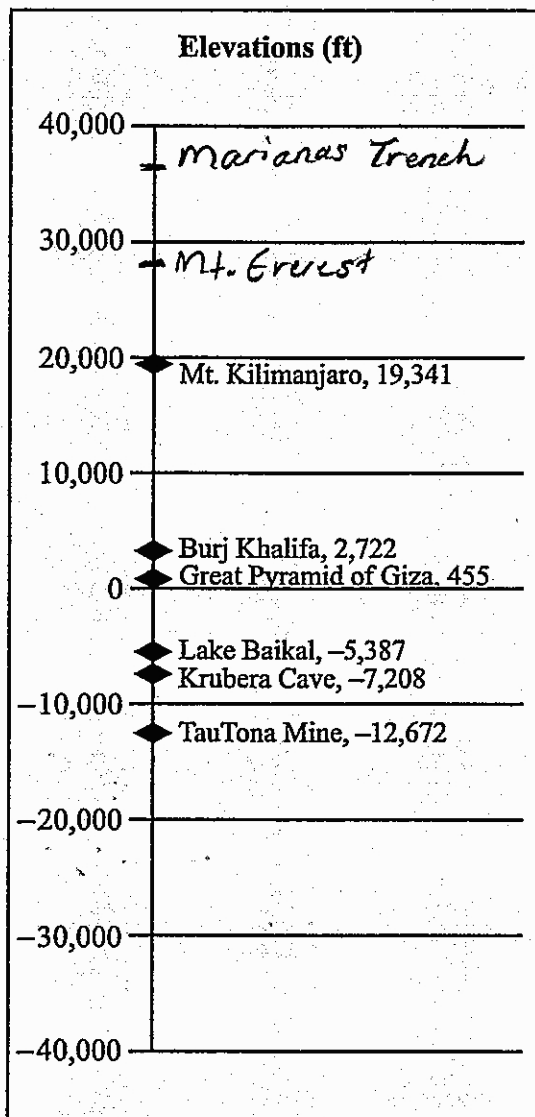
Total Content Points: 0

Total Practice Points: 0

The student does not correctly determine the difference in elevation, which should be positive and not negative, in Part A (no credit for 7.NS.A.1). In Part B, the student does not write two equivalent expressions (no credit for 7.NS.A.1c). The student does not complete all parts of the problem. While two expressions are provided in Part B, neither 29,029 + 36,069 = 65,098, nor 29,029 + –36,069 uses subtraction (no credit for MP1). The student makes a mathematical error in Part A, adding two positive numbers and getting a negative sum (no credit for MP6).
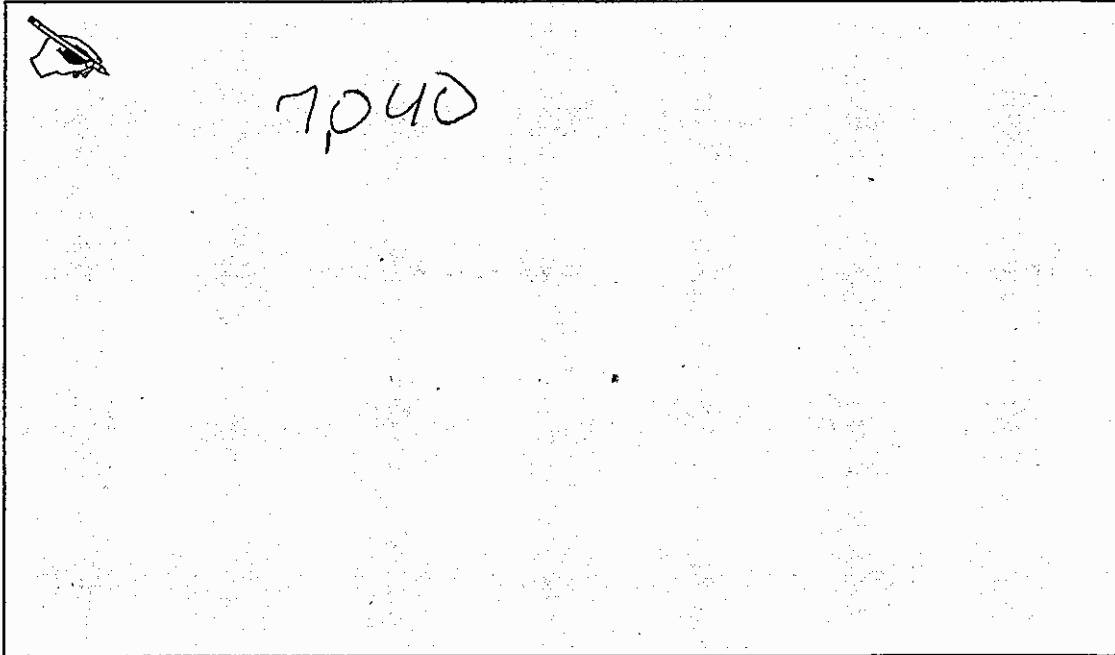
Total Awarded Points: 0 out of 4
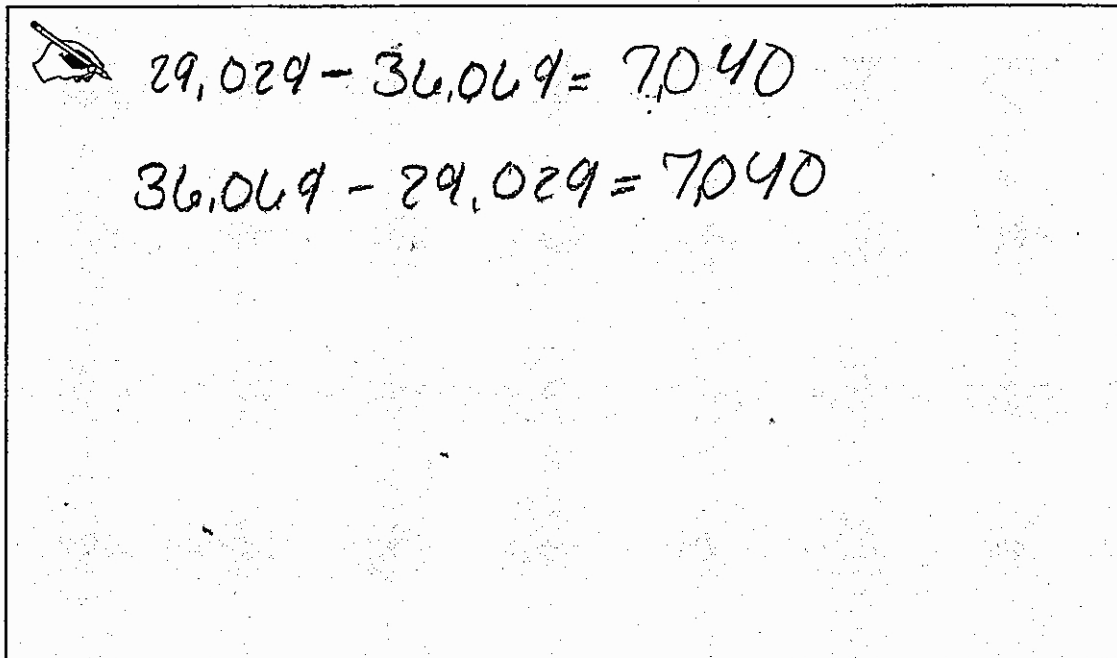
## 3. High and Low Elevations Task

Jahara looks in an atlas and finds that the top of Mt. Everest is 29,029 feet above sea level and the deepest part of the Marianas Trench in the Pacific Ocean is 36,069 feet below sea level. She has a number line that shows heights and depths for other physical features around the world.

**Elevations (ft)**

```
40,000 ──────────────────────────
           ╪ Marianas Trench

30,000 ──────────────────────────
           ╪ Mt. Everest


20,000 ──◆── Mt. Kilimanjaro, 19,341



10,000 ──────────────────────────


         ◆ Burj Khalifa, 2,722
    0 ──◆── Great Pyramid of Giza, 455

         ◆ Lake Baikal, −5,387
         ◆ Krubera Cave, −7,208
−10,000 ──────────────────────────
         ◆ TauTona Mine, −12,672


−20,000 ──────────────────────────



−30,000 ──────────────────────────



−40,000 ──────────────────────────
```

a.   Represent Mt. Everest and the Marianas Trench on the number line. Use the number line to find the difference in these two elevations.

7,040

b.   Write two equivalent expressions that can be used to find the difference in elevation between Mt. Everest and the Marianas Trench. At least one of the expressions must use subtraction.

$29,029 - 36,069 = 7040$

$36,069 - 29,029 = 7040$

Anchor 14                    Litho 00497200016

Total Content Points: 0

Total Practice Points: 0

The student does not determine the correct difference in elevation in Part A (no credit for 7.NS.A.1). In Part B, the student does not write two equivalent expressions (no credit for 7.NS.A.1c). The student does not complete all parts of the problem. Plotting the Marianas Trench above sea level indicates a failure to correctly interpret the number line (no credit for MP1). The student plots the Marianas Trench inaccurately and makes a mathematical error in Part B, indicating a lack of precision (no credit for MP6).

Total Awarded Points: 0 out of 4