

Rules with Subtraction

1. Simplify.

- a. $s + (-k)$ b. $m - (-m)$
c. $-2r - (-4r)$ d. $-5s + (-9s)$
e. $(-w^2) - 2w^2$ f. $-(-2w + 5w)$
g. $-(4x - 7x)$ h. $4x - (-2x)$

Subtraction Recap

Change to addition: $a - b = a + (-b)$

Change to addition: $a - (-b) = a + b$

Identity: $a - 0 = a$

Commutative? No: $5 - 3 \neq 3 - 5$

Associative? No: $7 - (4 - 3) \neq (7 - 4) - 3$

2. Simplify.

- a. $3 - (-8) - 12$ b. $-2\frac{5}{6} - \frac{7}{12} - 1\frac{2}{3}$
c. $34 - 21 - 15 + 7 + (-11)$ d. $98 - (12 - 15) + 7(3 - 13)$
e. $-(-7 - 8) + 7[3 - (-6)]$ f. $(20 - 35) - 2(-5 - 6)$
g. $2p + 7 - 14 - 10p$ h. $-x - 17 - 12x + 25$
i. $(-2p) - 6q + 7p - 10q$ j. $(8b - 9) - (17 - 12b)$
k. $7(8 - 2x) - (8x - 4)$ l. $-(x + 5) - 3x + (7 - 4x)$

3. Write an expression for this verbal sentence. Is it true for all values of x and y ?

“The opposite of the difference of x and y is equal to the difference of y and x .”

4. Determine whether $x - y = |x - y|$ is true in each of the following scenarios. If not true, give an example of a value for x and y for which the statement is not true.

- a. When both x and y are positive.
b. When both x and y are negative.
c. When x is positive and y is negative.
d. When x is negative and y is positive.
e. When x is greater than or equal to y .
f. When y is greater than or equal to x .

5. The mountaintop Cerro Lulllaillaco rises 6,723 meters above sea level. It is 14,787 m higher than the ocean floor of the Peru-Chile Trench. The volcano Licancabur is 13,980 m higher than the ocean floor of the Peru Chile Trench. What is the elevation of Licancabur?