



Douglas College

Douglas College Learning Centre

UNDERSTANDING HOW TO USE POSITIVE AND NEGATIVE NUMBERS

The Purpose of this handout is to help students, at any level of math or science ability, who might have difficulties with positive and/or negative signs. If you have any problems understanding this handout, please contact your tutor for clarification.

1) Adding:

a. Numbers with different signs: e.g. $(-6) + (3)$

- i. First, figure out the bigger number, ignoring the signs. The answer will have the sign of the bigger number.

e.g. $|6|$ is bigger than $|3|$; therefore, the answer should have a negative sign, the sign of (-6) .

- ii. Next, you need to find the difference between the values of the two numbers, giving the answer the sign of the bigger number.

e.g. the difference between $|6|$ and $|3|$ is $|3|$; therefore, the answer is (-3) .

b. Numbers with the same sign: e.g. $(-3) + (-6)$

- i. Add the values of the two numbers. Giving the answer the same sign of the two numbers.

e.g. $|3| + |6| = |9|$; therefore, the answer is (-9) , given the sign of the two numbers.

Exercise # 1:

1. $(-2) + (12)$
2. $(12) + (-6)$
3. $(-6) + (-8)$
4. $(4) + (3)$

2) Subtracting:**a. Numbers with different signs: e.g. $(-3) - (+6)$**

- i. Only for subtracting, you need to rewrite the question as an addition problem. To do this, change the minus sign to a plus sign and change the sign(s) of the number(s) to be subtracted to positive if it was negative, or to negative if it was positive.

e.g. change $(-3) - (+6)$ to $(-3) + (-6)$

- ii. The answer will have the same sign that both numbers in brackets have.

e.g. Both (-3) and (-6) have negative signs; therefore, the answer will have a negative sign.

- iii. Finally, you need to add the values of the two numbers, giving the answer the same sign of the two numbers.

e.g. the sum of $|6|$ and $|3|$ is $|9|$; therefore, the answer is (-9) .

b. Numbers with the same signs: e.g. $(3) - (6)$

- i. Only for subtracting, you need to rewrite the question as an addition problem. To do this, change the minus sign to a plus sign and change the sign of the number(s) to be subtracted to positive if it was negative, or to negative if it was positive.

e.g. change $(+3) - (+6)$ to $(+3) + (-6)$

- ii. Figure out the bigger number, ignoring the signs. The answer will have the sign of the bigger number.

e.g. $|6|$ is bigger than $|3|$; therefore, the answer should have a negative sign; the sign of (-6) .

- iii. Finally, you need to find the difference between the values of the two numbers, giving the answer the sign of the bigger number.

e.g. the difference between $|6|$ and $|3|$ is $|3|$; therefore, the answer is (-3) .

Exercise #2:

1. $(-5) - (6)$
2. $(-6) - (-5)$
3. $(6) - (-12)$
4. $(-8) - (-12)$

3) Multiplying:

- a. Numbers with different signs: e.g. $(-2) \times (+3)$**

- i. You want to keep in mind that the answer will always have a negative sign whenever the numbers to be multiplied have different signs.

e.g. $(-2) \times (+3)$, the answer will have a negative sign

- ii. Now, multiply the values of the two numbers, ignoring their signs.

e.g. $|2| \times |3| = |6|$; therefore, the answer is (-6) because the signs of the multiplied numbers are different.

b. Numbers with the same sign: e.g. (-6) X (-3)

- i. You need to keep in mind that whenever the multiplied numbers have the same sign, the answer will always have a positive sign.

e.g. (-6) X (-3) = (6) X (3) = a positive answer

- ii. Now, multiply the values of the two numbers.

e.g. |6| X |3| = |18|; therefore, the answer is (+18).

Exercise #3:

1. (-4) X (3)
2. (-3) X (-7)
3. (5) X (-2)
4. (-2) X (-12)

4) Dividing:**a. Numbers with different signs: e.g. (-6) + (+3)**

- i. You want to keep in mind that the answer will always have a negative sign whenever the numbers to be divided have different signs.

e.g. (-6) / (+3) , the answer will have a negative sign

- ii. Now, divide the values of the two numbers.

e.g. |6| / |3| = |2|, therefore the answer is (-2) because the signs of the divided numbers are different.

b. Numbers with the same sign: e.g. (-6) / (-3)

- i. You always need to keep in mind that whenever the divided numbers have the same sign, the answer will always have a positive sign.

e.g. $(-6) / (-3) = (6) / (3) = \text{a positive answer}$

- ii. Now, divide the values of the two numbers.

e.g. $|6| / |3| = |2|$; therefore, the answer is $(+2)$.

Exercise #4:

1. $(12) / (-3)$
2. $(-24) / (-8)$
3. $(-16) / (8)$
4. $(-8) / (-2)$

Practical Examples:

1. $4 \times (-5)$
2. $6 - (-11)$
3. $(-5) + (-3)$
4. $24 / (-4)$
5. $(-3) - 7$
6. $7 + (-13)$
7. $(-9) \times (-4)$
8. $(-36) / (-4)$

Answers to Exercise #1:

1. (+10)
2. (+6)
3. (-14)
4. (+7)

Answers to Exercise #2:

1. (-11)
2. (-1)
3. (+18)
4. (+4)

Answers to Exercise #3:

1. (-12)
2. (+21)
3. (-10)
4. (+24)

Answers to Exercise #4:

1. (-4)
2. (+3)
3. (-2)
4. (+4)

Answers to the Practice Examples:

1. (-20)
2. (17)
3. (-8)
4. (-6)
5. (-10)
6. (-6)
7. (36)
8. (9)