Rationals – Adding, Subtracting, Multiplying and Dividing

Rule 1: When adding two positive numbers, find the sum of their absolute values, the answer is positive.

Rule 2: When adding two negative numbers, find the sum of their absolute values, the answer is negative.

Rule 3: When adding one positive and negative number, find the difference between their absolute values and use the sign of the integer with the greatest absolute value.

Rule 4: When subtracting numbers with different signs, change the sign of the subtrahend (second number) and add using Rule 1, 2, or 3.

Rule 5: When multiplying numbers with the same sign, the answer is positive.

Rule 6: When multiplying numbers with different signs, the answer is negative.

Example:

Simplify $\dfrac{1}{8} + \dfrac{-3}{8} + \dfrac{3}{8}$

$= \dfrac{1}{8} + 0 = \dfrac{1}{8}$

Simplify $\dfrac{3}{4} - \left(\dfrac{-3}{4}\right) + \dfrac{1}{4}$

$= \dfrac{3}{4} + \dfrac{3}{4} + \dfrac{1}{4} = \dfrac{7}{8}$

Simplify $0.2(-7-5)$

$= 0.2(-7 + -5) = 0.2(-12) = -2.4$

Simplify the following.

1. $2(+5) + 2(+9)$

2. $-2\big[(-3) + (-12)\big]$

3. $(+4) + \left(\dfrac{-8}{4}\right)$

4. $\left(\dfrac{-10}{-2}\right) - (+2)$

5. $(+7) - (+2) + (+1)$

6. $(-11) - (-3) + (4)$

7. $\dfrac{5}{6} + \left(\dfrac{2}{3} - \dfrac{1}{3}\right)$

8. $\dfrac{1}{3}(-13 + 4)$

9. $0.5(-10)(-6)$

10. $-0.2 - 0.9 - 1.1$

11. $-7 + 24 + 1 - 3$

12. $-8 \div \left(2 + \dfrac{1}{2}\right)$

13. $\dfrac{35}{-7} + \dfrac{-14}{7}$

14. $8(-3) - 10$

15. $-2 + 3(0.4) - 5(0.3)$