

Addition & Subtraction of Fractions & Mixed Numbers

Adding & Subtracting Fractions

1. Find a common denominator.
2. Add or subtract the two numerators and keep the denominator the same.
3. Simplify the answer and/or change improper fraction answers to mixed numbers.

ex: $\frac{1}{3} + \frac{1}{6}$

$$\begin{array}{r} \frac{1}{3} \times \frac{2}{2} = \frac{2}{6} \\ + \frac{1}{6} \times \frac{1}{1} = \frac{1}{6} \\ \hline \frac{3}{6} \div \frac{3}{3} = \frac{1}{2} \end{array}$$

Adding Mixed Numbers

1. Find a common denominator.
2. Add the two numerators and keep the denominator the same.
3. Add the whole numbers.
4. Simplify the answer and/or change improper fraction answers to mixed numbers.

ex: $2\frac{3}{4} + 1\frac{2}{3}$

$$\begin{array}{r} 2\frac{3}{4} = 2\frac{9}{12} \\ + 1\frac{2}{3} = 1\frac{8}{12} \\ \hline 3\frac{17}{12} = 4\frac{5}{12} \end{array}$$

Subtracting Mixed Numbers

1. Find a common denominator.
2. Subtract the two numerators and keep the denominators the same. If the top numerator is smaller than the bottom numerator, borrow from the whole number and rename the top fraction.
3. Subtract the whole numbers
4. Simplify the answer.

ex: $3\frac{1}{4} - 1\frac{1}{3}$

$$\begin{array}{r} 3\frac{1}{4} = 2\frac{3}{4} + \frac{12}{12} = 2\frac{15}{12} \\ - 1\frac{1}{3} = 1\frac{4}{12} \\ \hline 1\frac{11}{12} \end{array}$$

Multiplication & Division of Fractions & Mixed Numbers

Multiplying Fractions & Mixed Numbers

1. Turn any mixed numbers and whole numbers into improper fractions.
2. Cross-simplify if possible.
3. Multiply the numerators and then multiply the denominators
4. Simplify the answer and/or change improper fraction answers to mixed numbers.

ex: $2\frac{1}{4} \cdot \frac{1}{3}$

$$\begin{array}{c} 3 \cancel{x} \\ \frac{7}{4} \cdot \frac{1}{\cancel{3}_1} = \boxed{\frac{7}{4}} \end{array}$$

Dividing Fractions & Mixed Numbers

1. Turn any mixed numbers and whole numbers into improper fractions.
2. Keep the first fraction the same, change the division to multiplication, and flip the second fraction to its reciprocal.
3. Multiply the fractions.
4. Simplify the answer and/or change improper fraction answers to mixed numbers.

ex: $7 \div 1\frac{3}{4}$

$$\begin{array}{c} \frac{7}{1} \div \frac{7}{4} \\ \downarrow \\ \frac{7}{1} \cdot \frac{4}{\cancel{7}_1} = \frac{4}{1} = \boxed{4} \end{array}$$

Operations with Decimals

Adding & Subtracting Decimals

1. Write the problem vertically, lining up the decimal points.
2. Add additional zeroes at the end, if necessary, to make the numbers have the same number of decimal places.
3. Add/subtract as if the numbers are whole numbers
4. Bring the decimal point straight down

ex: $10.03 + 5.2$

$$\begin{array}{r} 10.03 \\ + 5.20 \\ \hline 15.23 \end{array}$$

Multiplying Decimals

1. Write the problem vertically with the numbers lined up to the right. The decimal points do NOT need to be lined up.
2. Ignore the decimals and multiply as if the numbers are whole numbers.
3. Count the total number of decimal places in the factors and put a decimal point in the product so that it has that same number of decimal places.

ex: 1.03×2.8

$$\begin{array}{r} 1.03 \rightarrow 2 \text{ decimal places} \\ \times 2.8 \rightarrow 1 \text{ decimal place} \\ \hline 824 \\ + 2060 \\ \hline 2884 \end{array} \rightarrow \begin{array}{c} 3 \text{ decimal places} \\ \hline 2.884 \end{array}$$

Dividing Decimals

1. Write the dividend under the long division symbol and the divisor to the left of it.
2. Move the decimal point in the divisor after the number to turn it into a whole number and then move the decimal in the dividend the same number of places. Then bring it up.
3. Divide as if the numbers are both whole numbers.
4. Annex zeros in the dividend as needed until there is no remainder. If your answer is a repeating decimal, write the answer using bar notation.

ex: $25.3 \div 0.3$

$$\begin{array}{r} 84.\bar{3} \\ 0.3 \overline{) 25.30} \\ \underline{-24} \\ 13 \\ \underline{-12} \\ 10 \\ \underline{-9} \\ 1 \end{array}$$

Summer Packet

Date _____ Period _____

Evaluate each expression.

1) $6.2 + 6.2$

2) $5.8 - 3.5$

3) $6.4 - 6.2$

4) $3.1 + 0.8$

5) $4.28 + 6.6$

6) $0.6 - 0.4$

7) $4.5 + 3.8$

8) $0.8 + 5.4$

9) $7.8 + 7.4$

10) $1.4 + 3.8$

11) $6.36 + 6.3$

12) $8 - 0.5$

$$13) 7.9 - 0.4$$

$$14) 4.4 + 4.04$$

$$15) 4.7 - 2.9$$

$$16) 3.8 + 5.3$$

$$17) 3\frac{3}{4} + \frac{3}{2}$$

$$18) \frac{6}{7} + 3\frac{4}{5}$$

$$19) 2\frac{3}{4} - \frac{5}{3}$$

$$20) 2\frac{6}{7} - \frac{3}{4}$$

$$21) 2\frac{5}{8} + \frac{1}{5}$$

$$22) 3\frac{1}{5} - \frac{1}{6}$$

$$23) \frac{4}{3} + \frac{3}{4}$$

$$24) 2\frac{1}{6} + 4\frac{5}{6}$$

$$25) \frac{7}{6} + \frac{3}{5}$$

$$26) 3\frac{3}{8} - \frac{3}{2}$$

$$27) \frac{1}{3} + \frac{2}{3}$$

$$28) \frac{3}{2} + \frac{11}{6}$$

$$29) 3\frac{3}{5} + \frac{1}{5}$$

$$30) \frac{1}{2} + \frac{1}{3}$$

$$31) \frac{3}{2} + \frac{4}{5}$$

$$32) 1\frac{5}{7} + \frac{2}{3}$$

Find each product.

$$33) 6.693 \cdot 5$$

$$34) 5.79 \cdot 8.3$$

$$47) 2\frac{1}{4} \cdot \frac{7}{5}$$

$$48) 3\frac{7}{8} \cdot 4\frac{5}{9}$$

$$49) 2\frac{5}{6} \cdot 5\frac{1}{2}$$

$$50) 5\frac{1}{4} \cdot \frac{7}{8}$$

$$51) \frac{1}{2} \cdot \frac{7}{5}$$

$$52) 3\frac{4}{9} \cdot 3\frac{1}{2}$$

$$53) 3\frac{1}{8} \cdot 5\frac{1}{5}$$

$$54) \frac{1}{3} \cdot \frac{1}{3}$$

$$55) \frac{4}{3} \cdot \frac{3}{8}$$

$$56) \frac{1}{3} \cdot \frac{1}{4}$$

$$57) 8 \cdot 27$$

$$58) 45 \cdot 16$$

59) $33 \cdot 29$

60) $45 \cdot 30$

61) $12 \cdot 28$

62) $10 \cdot 49$

63) $11 \cdot 19$

64) $40 \cdot 10$

65) $27 \cdot 43$

66) $34 \cdot 4$

67) $41 \cdot 25$

68) $27 \cdot 31$

Find each quotient.

69) $8.4 \div 8$

70) $7 \div 7$

71) $0.6 \div 0.3$

72) $7.256 \div 0.2$

73) $9.6 \div 10$

74) $6.3 \div 2.5$

75) $4.8 \div 0.8$

76) $6.8 \div 8$

77) $0.4 \div 1.6$

78) $4.5 \div 1.5$

79) $2.3 \div 4.6$

80) $9 \div 0.1$

81) $728 \div 8$

82) $6003 \div 69$

83) $1218 \div 42$

84) $400 \div 50$

85) $5772 \div 78$

86) $1005 \div 67$

87) $124 \div 62$

88) $1680 \div 70$

89) $5152 \div 92$

90) $1292 \div 76$

91) $4500 \div 50$

92) $1258 \div 74$

93) $5\frac{5}{6} \div \frac{9}{5}$

94) $\frac{1}{10} \div \frac{3}{4}$

$$95) \frac{9}{5} \div 1\frac{5}{6}$$

$$96) \frac{1}{7} \div 3\frac{1}{3}$$

$$97) \frac{11}{10} \div 9\frac{2}{9}$$

$$98) \frac{1}{10} \div \frac{4}{5}$$

$$99) 4\frac{3}{8} \div \frac{3}{2}$$

$$100) 5\frac{1}{2} \div 4\frac{1}{7}$$

$$101) 2\frac{2}{9} \div \frac{3}{8}$$

$$102) 4\frac{1}{6} \div \frac{2}{3}$$

$$103) 3\frac{2}{5} \div 2\frac{2}{5}$$

$$104) 2 \div 2\frac{1}{6}$$

