

Summer Work Prior to Pre-Algebra

I. Order of Operations

Simplify the following using order of operations.

1) $8 + 7 + 12 \div 4$

$8 + 7 + 3$

18

2) $30 \cdot (6 - 4)$

$30 \cdot 2$

60

3) $36 \div 6 + 7 - 6$

$6 + 7 - 6$

7

4) $81 \div 27 \times 6 - 2$

$3 \times 6 - 2$

$18 - 2$

16

5) $\frac{86 - 11}{11 + 4}$

$\frac{75}{15}$

5

6) $(19 - 8)4$

$(11)4$

44

7) $2[3 + 7(4)]$

$2[3 + 28]$

$2[31]$

62

8) $4(8) \div (8 - 6)$

$32 \div 2$

16

II. Operations With Fractions

Add or subtract. Always leave your answers in simplest form.

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

$$2) \frac{8}{15} + \frac{4}{15} = \frac{12}{15} = \boxed{\frac{4}{5}}$$

$$3) \frac{5}{6} - \frac{1}{6} = \frac{4}{6} = \boxed{\frac{2}{3}}$$

$$4) \frac{1}{5} + \frac{2}{7}$$

$$\begin{array}{r} \frac{1}{5} \cdot \frac{7}{7} = \frac{7}{35} \\ + \frac{2}{7} \cdot \frac{5}{5} = \frac{10}{35} \\ \hline = \boxed{\frac{17}{35}} \end{array}$$

$$5) \frac{4}{5} - \frac{7}{9}$$

$$\begin{array}{r} \frac{4}{5} \cdot \frac{9}{9} = \frac{36}{45} \\ - \frac{7}{9} \cdot \frac{5}{5} = \frac{35}{45} \\ \hline = \boxed{\frac{1}{45}} \end{array}$$

$$6) \frac{1}{9} + \frac{7}{12}$$

$$\begin{array}{r} \frac{1}{9} \cdot \frac{4}{4} = \frac{4}{36} \\ + \frac{7}{12} \cdot \frac{3}{3} = \frac{21}{36} \\ \hline = \boxed{\frac{25}{36}} \end{array}$$

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

$$\begin{array}{r} \frac{12}{5} + \frac{16}{5} \\ \hline = \boxed{5\frac{3}{5}} \end{array}$$

$$8) 5\frac{1}{3} - 3\frac{1}{6}$$

$$\begin{array}{r} \frac{16}{3} - \frac{19}{6} \\ \frac{16}{3} \cdot \frac{2}{2} = \frac{32}{6} \\ \frac{19}{6} \\ \hline = \boxed{\frac{13}{6} \text{ or } 2\frac{1}{6}} \end{array}$$

$$9) 4\frac{1}{8} + 2\frac{5}{9}$$

$$\begin{array}{r} 4\frac{1}{8} = 4\frac{9}{72} \\ 2\frac{5}{9} = 2\frac{40}{72} \\ \hline = \boxed{6\frac{49}{72}} \end{array}$$

$$\text{or } 5\frac{2}{3} - 3\frac{1}{6} = 2\frac{1}{6}$$

Multiply or divide. Always leave your answers in simplest form.

10) $\frac{2}{5} \cdot \frac{3}{16}$
 $\frac{3}{40}$

11) $\frac{1}{7} \cdot \frac{21}{22}$
 $\frac{3}{22}$

12) $3\frac{1}{4} \cdot \frac{2}{11}$
 $\frac{13}{4} \cdot \frac{2}{11}$
 $\frac{13}{22}$

13) $\frac{4}{5} \div \frac{2}{5}$
 $\frac{4}{5} \cdot \frac{5}{2}$
 2

14) $\frac{2}{3} \div \frac{1}{9}$
 $\frac{2}{3} \cdot \frac{9}{1}$
 6

15) $2\frac{1}{6} \div 1\frac{1}{5}$
 $\frac{13}{6} \div \frac{6}{5}$
 $\frac{13}{6} \cdot \frac{5}{6}$
 $\frac{65}{36}$ or $1\frac{29}{36}$

16) $\frac{1}{5} \cdot \frac{1}{8}$
 $\frac{1}{40}$

17) $\frac{2}{3} \cdot \frac{7}{12}$
 $\frac{7}{6}$ or $1\frac{1}{6}$

18) $11 \div 3\frac{1}{7}$
 $11 \div \frac{22}{7}$
 $\frac{11}{1} \cdot \frac{7}{22}$
 $\frac{7}{2}$ or $3\frac{1}{2}$

III. Operations With Decimals

Find each sum or difference. Do not use a calculator.

1) $17.8 + 22.9$

$$\begin{array}{r} 17.8 \\ + 22.9 \\ \hline 40.7 \end{array}$$

2) $113.6 - 41.8$

$$\begin{array}{r} 113.6 \\ - 41.8 \\ \hline 71.8 \end{array}$$

3) $0.37 + 2.548$

$$\begin{array}{r} 2.548 \\ + 0.37 \\ \hline 2.918 \end{array}$$

4) $178.4 - 13.76$

$$\begin{array}{r} 178.40 \\ - 13.76 \\ \hline 164.64 \end{array}$$

5) $36.17 - 20$

$$\begin{array}{r} 36.17 \\ - 20.00 \\ \hline 16.17 \end{array}$$

6) $8.74 + 3.15$

$$\begin{array}{r} 8.74 \\ + 3.15 \\ \hline 11.89 \end{array}$$

7) $92.71 + 115.23$

$$\begin{array}{r} 115.23 \\ + 92.71 \\ \hline 207.94 \end{array}$$

8) $17.00 - 4.61$

$$\begin{array}{r} 17.00 \\ - 4.61 \\ \hline 12.39 \end{array}$$

Find each product or quotient.

9) 5.7×9.4

$$\begin{array}{r} 5.7 \\ \times 9.4 \\ \hline 228 \\ 513 \\ \hline 53.58 \end{array}$$

10) $13.02 \div 4.2$

$$\begin{array}{r} 3.1 \\ 4.2 \overline{) 13.02} \\ \underline{126} \\ 42 \end{array}$$

3.1

11) 7.34×7.6

$$\begin{array}{r} 7.34 \\ \times 7.6 \\ \hline 4404 \\ 5138 \\ \hline 55.784 \end{array}$$

55.784

12) $0.1485 \div 1.35 = 0.11$

$$\begin{array}{r} 0.11 \\ 1.35 \overline{) 0.1485} \\ \underline{135} \\ 135 \end{array}$$

13) $100.1 \div 14.3 = 7$

$$\begin{array}{r} 7.0 \\ 14.3 \overline{) 100.1} \\ \underline{1001} \\ 0 \end{array}$$

14) 1.723×2.49

$$\begin{array}{r} 1.723 \\ \times 2.49 \\ \hline 15507 \\ 6992 \\ 3446 \\ \hline 4.29027 \end{array}$$

15) $25.334 \div 5.3 = 4.78$

$$\begin{array}{r} 4.78 \\ 5.3 \overline{) 25.334} \\ \underline{212} \\ 413 \\ \underline{371} \\ 424 \end{array}$$

16) $2 \div 3 = 0.67$

$$\begin{array}{r} .666\dots \\ 3 \overline{) 2.000} \\ \underline{18} \\ 20 \\ \underline{18} \\ 20 \end{array}$$

IV. Operations With Integers

Find each sum or difference. Do not use a calculator.

$$1) 5 + (-6) = \boxed{-1}$$

$$2) 8 - 17 = \boxed{-9}$$

$$3) -6 + 13 = \boxed{7}$$

$$4) -15 - 3 = \boxed{-18}$$

$$5) 15 + (-29) = \boxed{-14}$$

$$6) 20 + (-5) = \boxed{15}$$

$$7) -56 - 32 = \boxed{-88}$$

$$8) 30 + (-7) = \boxed{23}$$

$$9) -16 + (-23) = \boxed{-39}$$

$$10) \begin{array}{l} -11 + 15 + (-6) \\ \quad \underbrace{-11 + 15}_{4} + (-6) \\ \quad \quad \quad \boxed{-2} \end{array}$$

$$11) 17 - 33 = \boxed{-16}$$

$$12) 23 + (-64) = \boxed{-41}$$

Find each product or quotient. Do not use a calculator.

$$13) -4(2) = \boxed{-8}$$

$$14) -36 \div 9 = \boxed{-4}$$

$$15) (-8)(-5) = \boxed{40}$$

$$16) 112 \div (-8) = \boxed{-14}$$

$$17) 13(-4) = \boxed{-52}$$

$$18) -26 \div (-13) = \boxed{2}$$

$$19) 4 \bullet 10 \bullet -3$$

$$\boxed{-120}$$

$$20) -190 \div (-10)$$

$$\boxed{19}$$

$$21) (-9)(3)(-2)$$

$$\overbrace{(-27)(-2)}$$

$$\boxed{54}$$

$$22) 304 \div (-8) = \boxed{-38}$$

$$23) (-6)(-2)(-14)$$

$$\overbrace{(12)(-14)}$$

$$\boxed{-168}$$

$$24) -1000 \div 10$$

$$\boxed{-100}$$