

Order of Operations with Decimals

Developing:

Evaluate each expression.

1) $-1.7 \times -4.7 + 0.03 = \boxed{8.02}$

$$\begin{array}{r} \overset{2}{1} \checkmark \\ 1.7 \\ \times 4.7 \\ \hline 119 \\ 680 \\ \hline 7.99 \end{array} \quad \begin{array}{r} \overset{1}{1} \\ 7.99 \\ + 0.03 \\ \hline 8.02 \end{array}$$

2) $(-3.8 \times 0.5)^2 = \boxed{3.61}$

$$\begin{array}{r} \overset{4}{3} \\ 3.8 \\ \times 0.5 \\ \hline -1.90 \end{array} \quad \begin{array}{r} \overset{8}{1} \\ 1.9 \\ \times 1.9 \\ \hline 171 \\ 190 \\ \hline 3.61 \end{array}$$

3) $0.46 - 0.1 \times -3.2 = \boxed{0.78}$

$$\begin{array}{r} 0.1 \\ \times 3.2 \\ \hline 02 \\ 030 \\ \hline 0.32 \end{array} \quad \begin{array}{r} 0.46 \\ + 0.32 \\ \hline 0.78 \end{array}$$

4) $(4 + 4.3) \times 0.2 = \boxed{1.66}$

$$\begin{array}{r} 4.3 \\ + 4.0 \\ \hline 8.3 \end{array} \quad \begin{array}{r} 8.3 \\ \times 0.2 \\ \hline 1.66 \end{array}$$

5) $1.2 - (3.6 - 2.83) = \boxed{0.43}$

$$\begin{array}{r} \overset{2}{3} \overset{15}{6} \\ 3.60 \\ - 2.83 \\ \hline 0.77 \end{array} \quad \begin{array}{r} \overset{0}{1} \overset{11}{2} \\ 1.20 \\ - 0.77 \\ \hline 0.43 \end{array}$$

6) $-4.1 \times -5.9 + 3.6 = \boxed{27.79}$

$$\begin{array}{r} 4.1 \\ \times 5.9 \\ \hline 369 \\ + 2050 \\ \hline 24.19 \end{array} \quad \begin{array}{r} 24.19 \\ + 3.60 \\ \hline 27.79 \end{array}$$

$$7) -4.5(2.18 - 1.8) = \boxed{-1.71}$$

$$\begin{array}{r} 2.18 \\ -1.80 \\ \hline 0.38 \end{array} \quad \begin{array}{r} 0.38 \\ \times 4.5 \\ \hline 190 \\ +1520 \\ \hline 1.710 \end{array}$$

$$8) (-3.4)^2 \div -1.36 = \boxed{-8.5}$$

$$\begin{array}{r} 3.4 \\ \times 3.4 \\ \hline 136 \\ +1020 \\ \hline 11.56 \end{array} \quad \begin{array}{r} 8.5 \\ 1.36 \overline{) 11.5600} \\ \underline{-1088} \\ 680 \\ \underline{-680} \\ 0 \end{array}$$

$$\begin{array}{r} 136 \\ +136 \\ \hline 272 \\ +136 \\ \hline 408 \\ +136 \\ \hline 544 \\ +136 \\ \hline 680 \\ +136 \\ \hline 816 \\ +136 \\ \hline 952 \\ +136 \\ \hline 1088 \end{array}$$

$$9) -4.2 \div -1.2 + 2.4 = \boxed{5.9}$$

$$\begin{array}{r} 3.5 \\ 1.2 \overline{) 4.200} \\ \underline{-36} \\ 60 \\ \underline{-60} \\ 0 \end{array} \quad \begin{array}{r} 3.5 \\ +2.4 \\ \hline 5.9 \end{array}$$

$$10) -5.8 + 5.5 \times -2.46 = \boxed{-19.33}$$

$$\begin{array}{r} 2.46 \\ \times 5.5 \\ \hline 1230 \\ +12300 \\ \hline -13.530 \end{array} \quad \begin{array}{r} 13.53 \\ +5.80 \\ \hline 19.33 \end{array}$$

Proficient: Evaluate each expression.

$$11) (-0.8 + 1.3) \times 2.7 \div 5 = \boxed{0.27}$$

$$\begin{array}{r} 1.3 \\ -0.8 \\ \hline 0.5 \end{array} \quad \begin{array}{r} 2.7 \\ \times 0.5 \\ \hline 1.35 \end{array} \quad \begin{array}{r} 0.27 \\ 5 \overline{) 1.35} \\ \underline{-10} \\ 35 \\ \underline{-35} \\ 0 \end{array}$$

$$12) -2.6 - (-2.6 - (-3.5 - 0.7)) = -2.6 - (-2.6 + (+4.2))$$

$$\begin{array}{r} 3.5 \\ +0.7 \\ \hline -4.2 \end{array} \quad \begin{array}{r} 4.2 \\ -2.6 \\ \hline 1.6 \end{array} \quad \begin{array}{r} = -2.6 - (1.6) \\ = \boxed{-4.2} \end{array}$$

$$\begin{array}{r} 2.6 \\ +1.6 \\ \hline -4.2 \end{array}$$

$$13) (0.3 \times 4.8) \div (-3.4 + +1.8) = 1.44 \div (-1.6)$$

$$\begin{array}{r} 4.8 \\ \times 0.3 \\ \hline 1.44 \end{array} \quad \begin{array}{r} 3.4 \\ -1.8 \\ \hline 1.6 \end{array} \quad = \boxed{-0.9}$$

$$\begin{array}{r} 0.9 \\ 1.6 \overline{) 1.440} \\ \underline{-144} \\ 0 \end{array}$$

$$14) (4.6 + 5.9)(1.4 - 2.2) = (10.5)(-0.8)$$

$$\begin{array}{r} 4.6 \\ +5.9 \\ \hline 10.5 \end{array} \quad \begin{array}{r} 2.2 \\ -1.4 \\ \hline 0.8 \end{array} \quad = \boxed{-8.4}$$

$$\begin{array}{r} 10.5 \\ \times 0.8 \\ \hline 8.40 \end{array}$$

$$15) -0.9(2.4 + 5.3 + 2.2) = -0.9(9.9)$$

$$\begin{array}{r} 2.4 \\ 5.3 \\ +2.2 \\ \hline 9.9 \end{array} \quad \begin{array}{r} 9.9 \\ \times 0.9 \\ \hline 8.91 \end{array} = \boxed{-8.91}$$

$$16) (-5.8 + 3.5)^2 - 4.4 = (-2.3)^2 - 4.4$$

$$\begin{array}{r} 5.8 \\ -3.5 \\ \hline 2.3 \end{array} \quad \begin{array}{r} 2.3 \\ \times 2.3 \\ \hline 169 \\ +460 \\ \hline 5.29 \end{array} = 5.29 - 4.4 = \boxed{0.89}$$

$$17) -2.6(1.9 + 2.1) + 1.6 = -2.6(4) + 1.6$$

$$\begin{array}{r} 1.9 \\ +2.1 \\ \hline 4.0 \end{array} \quad \begin{array}{r} 4.0 \\ \times 2.6 \\ \hline 10.4 \end{array} = -10.4 + 1.6 = \boxed{-8.8}$$

$$18) -2.59 - 3.8 + (-4.7)^2 = -2.59 - 3.8 + 22.09$$

$$\begin{array}{r} 4.7 \\ \times 4.7 \\ \hline 329 \\ +1880 \\ \hline 22.09 \end{array} \quad \begin{array}{r} 2.59 \\ +3.80 \\ \hline 6.39 \end{array} = -6.39 + 22.09 = \boxed{15.7}$$

$$19) (-2.5 - 1.7)^2 + 1.9 = (-4.2)^2 + 1.9$$

$$\begin{array}{r} 2.5 \\ +1.7 \\ \hline 4.2 \end{array} \quad \begin{array}{r} 4.2 \\ \times 4.2 \\ \hline 184 \\ +1680 \\ \hline 17.64 \end{array} = 17.64 + 1.9 = \boxed{19.54}$$

$$20) (5.8 - (3.7 - 2.3)) \times 1.5 = (5.8 - 1.4) \times 1.5$$

$$\begin{array}{r} 3.7 \\ -2.3 \\ \hline 1.4 \end{array} \quad \begin{array}{r} 5.8 \\ -1.4 \\ \hline 4.4 \end{array} \quad \begin{array}{r} 4.4 \\ \times 1.5 \\ \hline 220 \\ +440 \\ \hline 6.60 \end{array} = 4.4 \times 1.5 = \boxed{6.6}$$

Extending: Evaluate each expression.

$$21) -1.3 - 2.1 - (-0.2 \times 3.9) \div -0.6$$

$$\begin{array}{r} 1.3 \\ +2.1 \\ \hline 3.4 \end{array} \quad \begin{array}{r} 3.9 \\ \times 0.2 \\ \hline .78 \end{array} = -3.4 - (-0.78) \div (-0.6) = -3.4 - (1.3) = \boxed{-4.7}$$

$$22) 5.9 - 5.9 - 1.2^2 + 0.4 = 0 - 1.44 + 0.4$$

$$\begin{array}{r} 1.2 \\ \times 1.2 \\ \hline 24 \\ 120 \\ \hline 1.44 \end{array} \quad \begin{array}{r} 1.44 \\ -0.40 \\ \hline 1.04 \end{array} = \boxed{-1.04}$$

$$\begin{array}{r} 1.3 \\ 0.9 \overline{)0.78} \\ \underline{-6} \\ 18 \\ \underline{-18} \\ 0 \end{array} \quad \begin{array}{r} 3.4 \\ +1.3 \\ \hline 4.7 \end{array}$$

23) $(0.6(-1 - 5.78 + 5.5)) \div -3.2 = (0.6(-1.28)) \div -3.2$ 24) $3.8 \times 3.1 - 5.2 + 3.4 + 1.2 = 11.78 - 5.2 + 3.4 + 1.2$

\downarrow
 $-6.78 + 5.5 = -0.768 \div -3.2$ \downarrow
 $= 0.24$ $3.8 \times 3.1 = 11.78$ $= 6.58 + 3.4 + 1.2$
 $= 11.18$

$$\begin{array}{r} 6.78 \\ -5.50 \\ \hline 1.28 \\ 1.4 \\ 1.28 \\ \hline 2.76 \\ \times 0.6 \\ \hline 0.768 \end{array}$$

$$\begin{array}{r} 0.24 \\ 3.2 \overline{) 0.768} \\ \underline{64} \\ 128 \\ \underline{128} \\ 0 \end{array}$$

$$\begin{array}{r} 3.8 \\ \times 3.1 \\ \hline 1140 \\ 1178 \\ \hline 11.78 \end{array}$$

$$\begin{array}{r} 11.78 \\ -5.20 \\ \hline 6.58 \\ 3.40 \\ +1.20 \\ \hline 11.18 \end{array}$$

25) $1.7 - (1.9 + 3.41 - 0.9) + 3.5 = -2.71 + 3.5 = 0.79$ 26) $4.6(-3.6 + 6) - 2.9 - (-3.2 - 2.8) = 4.6(2.4) - 2.9 + 6$

\downarrow
 $5.31 - 0.9 = 4.41$ \downarrow
 $= 0.79$ 2.4 -6 $= 11.04 - 2.9 + 6$
 $= 8.14 + 6$
 $= 14.14$

$$\begin{array}{r} 3.41 \\ +1.90 \\ \hline 5.31 \\ 4 \\ 5.31 \\ -0.90 \\ \hline 4.41 \end{array}$$

$$\begin{array}{r} 4.6 \\ \times 2.4 \\ \hline 184 \\ 920 \\ \hline 11.04 \end{array}$$

$$\begin{array}{r} 11.04 \\ -2.90 \\ \hline 8.14 \end{array}$$

27) $1.6 + (4.2 + 4.8)(2.5 - 2.2) + 2.6 = 1.6 + 2.7 + 2.6 = 6.9$ 28) $(-1.7 - 1.2) \times 2.4 - (-3.06 + -2.11 + 4.1)$

\downarrow
 $9 \times 0.3 = 2.7$ \downarrow
 $= 6.9$ $-2.9 \times 2.4 = -5.17 + 4.1$
 $= (-6.96) + (+1.07)$
 $= -5.89$

$$\begin{array}{r} 1.6 \\ 2.7 \\ 2.6 \\ \hline 6.9 \end{array}$$

$$\begin{array}{r} 5.17 \\ -4.10 \\ \hline 1.07 \\ 2.9 \\ \times 2.4 \\ \hline 116 \\ 580 \\ \hline 6.96 \end{array}$$

$$\begin{array}{r} 6.96 \\ -1.07 \\ \hline 5.89 \end{array}$$

29) $0.3^2 + 0.5 - 5.7 + 1.1 - 3$

\downarrow
 $= 0.09 + 0.5 - 5.7 + 1.1 - 3$
 \downarrow
 $= 0.59 - 5.7 + 1.1 - 3$
 \downarrow
 $= -5.11 + 1.1 - 3$
 \downarrow
 $= -4.01 - 3$
 $= -7.01$

$$\begin{array}{r} 0.3^2 \\ 0.09 \\ +0.5 \\ \hline 0.59 \\ -5.7 \\ \hline -5.11 \\ +1.1 \\ \hline -4.01 \\ -3 \\ \hline -7.01 \end{array}$$

30) $6 \div 1.5 + 3.1 + (-0.7 - 5.9) \div 4.4$

\downarrow
 $= 4 + 3.1 + (-6.6) \div 4.4$
 \downarrow
 $= 7.1 + (-1.5)$
 $= 5.6$

$$\begin{array}{r} 4 \\ 1.5 \overline{) 6.0} \\ \underline{60} \\ 0 \end{array}$$

$$\begin{array}{r} 1.5 \\ 4.4 \overline{) 6.600} \\ \underline{44} \\ 220 \\ \underline{220} \\ 0 \end{array}$$