```
\documentclass[a4j]{jarticle}
\input{MathM}

\begin{document}

\begin{center}{\large \bf Arithmetic Calculation} \end{center}



\begin{center}------------- Addition -----------------
\end{center}


\[
- 5 + 3 = \Eadd{-5}{3}
\]

\[
-3.2 + 1.6 = \Eadd{-3.2}{1.6}
\]

\[
0.1 + 0.1 = \Eadd{0.1}{0.1}
\]

\[
0.24 + 0.36 = \Eadd{0.24}{0.36}
\]

\[
-12 + 2.3 + 3.45 = \EaddS{-12}{2.3}{\u} \Eadd{\u}{3.45}
\]


\begin{center}------------- Subtraction -----------------
\end{center}

\[
2.3 - 1.2 = \Esub{2.3}{1.2}
\]

\[
0.1 - 0.1 = \Esub{0.1}{0.1}
\]

\[
0.5 - 0.72 = \Esub{0.5}{0.72}
```

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\]

\[
3.2 - 1.6 = \Esub{3.2}{1.6}
\]

\[
7.5 - 1.6 - 2.1 = \EsubS{7.5}{1.6}{\u} \Esub{\u}{2.1}
\]

\[
10 - 73 - 28 = \EsubS{10}{73}{\u} \Esub{\u}{28}
\]


\begin{center}------------- Multiplication -----------------
\end{center}


\[
1.2 \times (-2.3) = \Emul{1.2}{-2.3}
\]

\[
0.1 \times 0 = \Emul{0.1}{0}
\]

\[
0.5 \times 0.5 = \Emul{0.5}{0.5}
\]

\[
3.2 \times 1.6 = \Emul{3.2}{1.6}
\]

\[
0.5 \times 0.7 = \Emul{0.5}{0.7}
\]

\[
-3.2 \times 1.6 \times 0.7 = \EmulS{-3.2}{1.6}{\u}
\Emul{\u}{0.7}
\]
```

```
\begin{center}------------- Division -----------------
\end{center}


\[
3.7 \div (-1.4) = \Ediv{3.7}{-1.4}
\]
\[
2 \div 3= \Ediv{2}{3}
\]
\[
1 \div 3 =\Ediv{1}{3}
\]
\[
10 \div 7 = \Ediv{10}{7}
\]
\[
5.12 \div 1.6 = \Ediv{5.12}{1.6}
\]

\[
(-5.12) \div 1.6 \div (-0.8) = \EdivS{-5.12}{1.6}{\u}
\Ediv{\u}{-0.8}
\]
\[
9 \div 3 \div 2 = \EdivS{9}{3}{\u} \Ediv{\u}{2}
\]

\begin{center}------------- Arithmetic Calculation in General
-----------------\end{center}

\[
i22~12j{i4866j=
\EmulS{22}{12}{\u} \edef\ma{\u}
\EdivS{486}{6}{\u} \Eadd{\ma}{\u}
\]

\[
(8.63+7.05) \times (6.5-1.6) =
\EaddS{8.63}{7.05}{\u} \edef\ma{\u}
\EsubS{6.5}{1.6}{\u}     \edef\mb{\u}  \Emul{\ma}{\mb}
\]



\begin{center}{\large \bf Combinatorics} \end{center}
```

```
\begin{center}{----------- Factorials --------------}
\end{center}

\[
7! = \factorial{7}
\]


\begin{center}{------------ Permutations -------------}
\end{center}

\[
_9{\rm P}_4 = \perm{9}{4}
\]

\begin{center}{ ------------- Combinations ------------ }
\end{center}


\[
_9{\rm C}_9 = \comb{9}{9}, \
_9{\rm C}_8 = \comb{9}{8}, \
_9{\rm C}_7 = \comb{9}{7}, \
_9{\rm C}_6 = \comb{9}{6}, \
_9{\rm C}_5 = \comb{9}{5}, \
\]
\[
_9{\rm C}_4 = \comb{9}{4}, \
_9{\rm C}_3 = \comb{9}{3}, \
_9{\rm C}_2 = \comb{9}{2}, \
_9{\rm C}_1 = \comb{9}{1}, \
_9{\rm C}_0 = \comb{9}{0}
\]

\[
_{20}{\rm C}_{0} = \comb{20}{0}, \ _{20}{\rm C}_{1} =
\comb{20}{1}, \ _{20}{\rm C}_{2} = \comb{20}{2}, \
_{20}{\rm C}_{3} =  \comb{20}{3},\ _{20}{\rm C}_{4} =
\comb{20}{4}, \ _{20}{\rm C}_{5} = \comb{20}{5},
_{20}{\rm C}_{6} = \comb{20}{6},
\]
\[
_{20}{\rm C}_{7} = \comb{20}{7}, \ _{20}{\rm C}_{8} =
\comb{20}{8}, \ _{20}{\rm C}_{9} = \comb{20}{9}, \
_{20}{\rm C}_{10} = \comb{20}{10}, \ _{20}{\rm C}_{11} =
\comb{20}{11},
\]
```

```
\[
_{20}{\rm C}_{12} = \comb{20}{12}, \ _{20}{\rm C}_{13} =
\comb{20}{13}, \
_{20}{\rm C}_{14} = \comb{20}{14}, \ _{20}{\rm C}_{15} =
\comb{20}{15}, \ _{20}{\rm C}_{16} = \comb{20}{16}, \
_{20}{\rm C}_{17} = \comb{20}{17},
\]
\[
_{20}{\rm C}_{18} = \comb{20}{18}, \ _{20}{\rm C}_{19} =
\comb{20}{19}, \
_{20}{\rm C}_{20} = \comb{20}{20}
\]


\begin{center}---------------- Binomial Expansion
----------------------\end{center}


\[
(x+y)^2 = \Expand(x+y)^2
\]

\[
(x-y)^2 = \Expand(x-y)^2
\]

\[
(x+y)^3 = \Expand(x+y)^3
\]

\[
(x-y)^3 = \Expand(x-y)^3
\]

\[
(a+b)^4 = \Expand(a+b)^4
\]

\[
(\alpha+\beta)^9 = \Expand(\alpha+\beta)^9
\]


\[
(\alpha-\beta)^9 = \Expand(\alpha-\beta)^9
\]
```

```
\end{document}
```