

```

PPPPPPPP RRRRRRRR BBBB BBBB MM MM AAAAAA SSSSSSSS
PPPPPPPP RRRRRRRR BBBB BBBB MM MM AAAAAA SSSSSSSS
PP PP RR RR BB BB MMMM MMMM AA AA SS
PP PP RR RR BB BB MMMM MMMM AA AA SS
PP PP RR RR BB BB MM MM MM AA AA SS
PP PP RR RR BB BB MM MM MM AA AA SS
PPPPPPPP RRRRRRRR BBBB BBBB MM MM AA AA SSSSSS
PPPPPPPP RRRRRRRR BBBB BBBB MM MM AA AA SSSSSS
PP RR RR BB BB MM MM AAAAAAAAAA SS
PP RR RR BB BB MM MM AAAAAAAAAA SS
PP RR RR BB BB .... MM MM AA AA SS
PP RR RR BB BB .... MM MM AA AA SS
PP RR RR BBBB BBBB .... MM MM AA AA SSSSSSSS
PP RR RR BBBB BBBB .... MM MM AA AA SSSSSSSS

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44 44 000000 000000 44 44 000000 5555555555
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44 44 00 00 00 00 44 44 00 00 55
44 44 00 00 00 00 44 44 00 00 55
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44 00 00 00 00 44 00 00 55 55
44 00 00 00 00 44 00 00 55 55
44 000000 000000 44 000000 555555
44 000000 000000 44 000000 555555

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BBBB U UN N DDDD Y Y AAA
B BU UN ND D Y Y A A
B BU UNN ND D Y Y A A
BBBB U UNN ND D Y A A
B BU UN NN D D Y AAAAA
B BU UN ND D Y A A
BBBB UUUU N N DDDD Y A A

```

LPTSPL Version 6(344) Running on LPT560
 START User BUNDY A [400,405] Job PRB Seq. 3908 Date 28-Jul-78 14:23:31 Monitor ERCC 0092 6.03 V4 *START*
 Request created: 28-Jul-78 14:23:49
 File: DSKAO:PRB.MASC[400,405] Created: 28-Jul-78 14:22:00 <155> Printed: 28-Jul-78 14:23:45
 QUEUE Switches: /PRINT:ARROW /FILE:ASCII /COPIES:1 /SPACING:1 /LIMIT:32 /FORMS:NORMAL
 File will be RENAMED to <055> protection

prb.cmd
bloc.prb
pulley.prb
dome.prb
loop.prb
train.prb
car.prb
lever.prb

////

:- 'NOLC'.

/*BLOC.PRB*/

/*PROBLEM 3, STAGE 4*/

/*THE KLEERS SLIDING BLOCK PROBLEM*/

/*ALAN BUNDY SEPT 1976*/

/*CHANGE TO PATHSYS?*/

PATHINFO(_NAME,_LEND,_REND,_SLOPE,_CONV) :-
CHECKLIST(PASSERTA,C PATH(_NAME), POINT(_LEND),
END(_NAME,_LEND,LEFT), END(_NAME,_REND,RIGHT),
(CONCAVITY(_NAME,_CONV)), (SLOPE(_NAME,_SLOPE)]]).

PROBINFO :-

CHECKLIST(PASSERTA,C PROBTYPE(ROLLER-COASTER,_T), PARTICLE(M),
PATH(S0), PARTITION(S0,[S1,S2,S3]),
END(S0,CA,LEFT), END(S0,CD,RIGHT),
VEL(M,ZERO,DIRA,MA), AT(M,CA,MA),
SIDE(M,CA,LEFT,MA)]).

MISCINFO :-

CHECKLIST(PASSERTA, C
(DROP(S1,CA,H1)), (DROP(S2,CB,H2)),
GROUND(S3,L) , (INCLINE(S3,T,CC)),
(MEASURE(H1,2)), (MEASURE(H2,-1)),
(MEASURE(L,2)), (MEASURE(T,30)),
POINT(CD)]) .

STEADY :-

TRACE(PROBLEM-DEFINED-BY,4), NL,
PROBINFO, PATHINFO(S1,CA,CB,LEFT,LEFT),
PATHINFO(S2,CB,CC,RIGHT,LEFT), PATHINFO(S3,CC,CD,RIGHT,STLINE),
MISCINFO.

GOAL :- QA(AT(M,CD,_MOM),SOLVEINEQ(_X,_VAL)).

:- END.

!!!!

:- 'NOLC'.

/*G LUGER NOV 1977 PROBLEM 1*/

```
STEADY :- CHECKLIST(PASSERTA,C
  PERIOD(PERIOD1),
  ISA(PARTICLE,P1),
  ISA(PARTICLE,P2)  J),

CHECKLIST(PASSERTA,C
  MASS(P1,BQ,PERIOD1),
  MASS(P2,CQ,PERIOD1),
  ACCEL(P1,A1,90,PERIOD1),
  MEASURE(BQ,B), MEASURE(CQ,C)  J),

CHECKLIST(ASSETA,C
  GIVEN(BQ), GIVEN(CQ),
  SOUGHT(A1)  J),

CUE(PULLSYS_STAN(SYS,PULL,STR,P1,P2,PERIOD1)).
```

:- END.

////

:- 'NOLC'.

/*PROBLEM 5, STAGE 4*/
/*DE KLEERS GREAT DOME PROBLEM*/
/*ALAN BUNDY 30/12/76*/

STEADY1 :-
CHECKLIST(PASSERTA,C
PATH(S), POINT(TOP), POINT(BOTTOM),
END(S,TOP,LEFT), END(S,BOTTOM,RIGHT),
CONCAVITY(S,RIGHT), SLOPE(S,LEFT)]).

STEADY2 :-
CHECKLIST(PASSERTA,C
VEL(M,ZERO,0,DEPART), AT(M,TOP,DEPART),
SIDE(M,TOP,LEFT,DEPART),
PROBTYPE(ROLLER-COASTER,_T), PARTICLE(M),
PARTITION(C,[S,..REST]), CIRCLE(C), RADIUS(C,R),
ANGLE(TOP,90,C), ANGLE(BOTTOM,0,C),
NORMAL(S,DIR), NUDGE(M,DEPART)]).

STEADY3 :-
CHECKLIST(ASSERTA,C
GIVEN(DIR),GIVEN(R)]).

STEADY :- STEADY1,STEADY2,STEADY3.

GOAL :- QA(MOTION(M,S,TOP,LEFT,_PER),MIN(DIR,_MINVAL)).

:- END.

////

%%%%LOOP . PRB @15:23 8-APR-1978 <255> (232)

:- 'NOLC',

/*PROBLEM 4, STAGE 4*/
/*DE KLEERS LOOP THE LOOP PROBLEM*/
/*ALAN BUNDY 30/12/76*/

PATHINFO(_NAME,_LEND,_REND,_SLOPE,_CONV) :-
CHECKLIST(PASSERTA,[PATH(_NAME), POINT(_LEND),
END(_NAME,_LEND,LEFT), END(_NAME,_REND,RIGHT),
(CONCAVITY(_NAME,_CONV)), (SLOPE(_NAME,_SLOPE))]),

PROBINFO :-
CHECKLIST(PASSERTA,[PROBTYPE(ROLLER-COASTER,_T), PARTICLE(M),
PATH(S0), PARTITION(S0,[S1,S2,S3,S4,S5]),
END(S0,CA,LEFT), END(S0,CB,RIGHT),
VEL(M,ZERO,DIRA,MA), AT(M,CA,MA),
SIDE(M,CA,LEFT,MA)]),

MISCINFO :-
CHECKLIST(PASSERTA,[
PARTITION(CIRCLE,[S2,S3,S4,S5]),
CIRCLE(CIRCLE), RADIUS(CIRCLE,R),
ANGLE(CB,270,CIRCLE), ANGLE(CC,0,CIRCLE),
ANGLE(CD,90,CIRCLE), ANGLE(CE,180,CIRCLE),
DROP(S1,CA,H)]),
CHECKLIST(ASSERTA,[GIVEN(H), GIVEN(R)]),

STEADY :-
TRACE(PROBLEM-DEFINED-BY,4), NL,
PROBINFO,
PATHINFO(S1,CA,CB,LEFT,LEFT),
PATHINFO(S2,CB,CC,RIGHT,LEFT),
PATHINFO(S3,CD,CC,LEFT,RIGHT),
PATHINFO(S4,CE,CD,RIGHT,RIGHT),
PATHINFO(S5,CE,CB,LEFT,LEFT),
MISCINFO.

GOAL :- QA(MOTION(M,S0,CA,LEFT,_PER),MIN(H,_MINVAL)).

:- END.

:- 'NOLC'.

/*TRAIN.PRB*/
/*TRAIN PROBLEM*/
/*ALAN BUNDY APRIL 1978*/

STEADY :- CUE(TIMESYS(EPIISODE,DEPARTURE,ARRIVAL)),
CUE(TIMESYS(PERIOD1,DEPARTURE,CHANGE1)),
CUE(TIMESYS(PERIOD2,CHANGE1,CHANGE2)),
CUE(TIMESYS(PERIOD3,CHANGE2,ARRIVAL)),
CHECKLIST(PASSERTA,[
PARTITION(EPIISODE,[PERIOD1,PERIOD2,PERIOD3]),
DURATION(PERIOD1,TQ1), DISTANCE(TRAIN,DQ1,PERIOD1),
DURATION(PERIOD2,TQ2), DISTANCE(TRAIN,DQ2,PERIOD2),
DURATION(PERIOD3,TQ3), DISTANCE(TRAIN,DQ3,PERIOD3),
DURATION(EPIISODE,TQ0), DISTANCE(TRAIN,DQ0,EPIISODE),
VEL(TRAIN,ZERO,0,DEPARTURE), ACCEL(TRAIN,AQ1,0,PERIOD1),
VEL(TRAIN,ZERO,0,ARRIVAL), ACCEL(TRAIN,ZERO,0,PERIOD2),
VEL(TRAIN,VQ,0,PERIOD2), ACCEL(TRAIN,AQ3,0,PERIOD3),
MEASURE(TQ1,T1), UNIT(TQ1,MINS),
MEASURE(TQ2,T2), UNIT(TQ2,MINS),
MEASURE(TQ3,T3), UNIT(TQ3,MINS),
MEASURE(TQ0,T0), UNIT(TQ0,MINS),
MEASURE(DQ1,D1), UNIT(DQ1,MLS),
MEASURE(DQ2,D2), UNIT(DQ2,MLS),
MEASURE(DQ3,D3), UNIT(DQ3,MLS),
MEASURE(DQ0,7), UNIT(DQ0,MLS),
MEASURE(AQ1,2:(-1)), UNIT(AQ1,FT,SECS:(-2)),
MEASURE(AQ3,(-2)), UNIT(AQ3,FT,SECS:(-2)),
MEASURE(VQ,45), UNIT(VQ,MLS.HRS:(-1)),
CONCAVITY(TRACK,STLINE), SLOPE(TRACK,HOR),
CONCAVITY(SEG1,STLINE), SLOPE(SEG1,HOR),
CONCAVITY(SEG2,STLINE), SLOPE(SEG2,HOR),
CONCAVITY(SEG3,STLINE), SLOPE(SEG3,HOR)]),
CUE(LINE_MOTION(TRAIN,TRACK,EPIISODE)),
CUE(LINE_MOTION(TRAIN,SEG1,PERIOD1)),
CUE(LINE_MOTION(TRAIN,SEG2,PERIOD2)),
CUE(LINE_MOTION(TRAIN,SEG3,PERIOD3)),
ASSERTA(SOUGHT(TQ0)).

:- END.

////

:- 'NOLC',

/*CAR.PRB*/
/*SIMPLE CAR PROBLEM*/
/*ALAN BUNDY APRIL 1978*/

STEADY :-

CUE(TIMESYS(EPIISODE,DEPARTURE,ARRIVAL)),
CHECKLIST(PASSERTA,
DURATION(EPIISODE,TQ), DISTANCE(CAR,DQ,EPIISODE),
VEL(CAR,ZERO,0,DEPARTURE),VEL(CAR,VQ,0,ARRIVAL),
ACCEL(CAR,AQ,0,EPIISODE),
MEASURE(TQ,T), UNIT(TQ,MINS),
MEASURE(DQ,7), UNIT(DQ,MLS),
MEASURE(VQ,V), UNIT(VQ,FT,SECS:(-1)),
MEASURE(AQ,2), UNIT(AQ,FT,SECS:(-2)),
CONCAVITY(ROAD,STLINE), SLOPE(ROAD,HOR)],
CUE(LINE_MOTION(CAR,ROAD,EPIISODE)),
ASSERTA(SOUGHT(TQ)), ASSERTA(SOUGHT(VQ)).

:- END.

////

:- 'NOLC'.

/*LEVER.PRB*/
/*FIRST LEVER PROBLEM*/
/*ALAN BUNDY APRIL L978*/

STEADY :-

```
CHECKLIST(PASSERTA,C
  PERIOD(NOW),PARTICLE(MAN1),PARTICLE(MAN2),
  MASS(MAN1,MQ1,NOW), MASS(MAN2,MQ2,NOW),
  MEASURE(MQ1,175), UNIT(MQ1,LBS),
  MEASURE(MQ2,150), UNIT(MQ2,LBS),
  MASS(SCAFFOLD,MQ3,NOW),
  MEASURE(MQ3,100), UNIT(MQ3,LBS),
  SLOPE(SCAFFOLD,HOR),
  CONCAVITY(SCAFFOLD,STLINE),
  CONSTLENGTH(SCAFFOLD,DQ1), MEASURE(DQ1,10), UNIT(DQ1,FT) J),
CUE(ROD(SCAFFOLD,NOW)), ?(LINESYS(SCAFFOLD,_LEND,_REND)),
CUE(LINESYS(String1, TOP1,BOTTOM1)),
CUE(LINESYS(String2, TOP2,BOTTOM2)),
CHECKLIST(PASSERTA,C
  SEPERATION(_LEND,POINT1,DQ2,0,NOW),
  SEPERATION(POINT2,_REND,DQ3,0,NOW),
  MEASURE(DQ2,2), UNIT(DQ2,FT),
  MEASURE(DQ3,4), UNIT(DQ3,FT),
  POINT_OF(SCAFFOLD,POINT1), POINT_OF(SCAFFOLD,POINT2),
  FIXED_CONTACT(_LEND,BOTTOM1,NOW), FIXED_CONTACT(_REND,BOTTOM2,NOW),
  FIXED_CONTACT(MAN1,POINT1,NOW), FIXED_CONTACT(MAN2,POINT2,NOW),
  TENSION(String1,T1,NOW), TENSION(String2,T2,NOW) J),
CHECKLIST(ASSETA,[SOUGHT(T1), SOUGHT(T2) J).
```

:- END.

////