Key to Practical 8
Space Invaders (Part 1)

Step 1

```
FillScreen          ; Save registers on the stack.
                    movem.l d7/a0,-(a7)

                    ; A0 points to the video memory.
                    ; This instruction is identical to : movea.l #VIDEO_START,a0
                    lea     VIDEO_START,a0

                    ; Initialize the loop counter (D7.W).
                    ; The size of the copy is 32 bits wide, i.e. 4 bytes wide.
                    ; So, the number of iterations is the size in bytes divided by 4.
                    ; DBRA will be used for the loop,
                    ; So, D7.W must hold the number of iterations minus 1 (see Chapter 1).
                    move.w  #VIDEO_SIZE/4-1,d7

\loop               ; Copy the data into the video memory
                    ; and increment the address.
                    move.l  d0,(a0)+
                    dbra    d7,\loop

                    ; Restore registers from the stack and return from subroutine.
                    movem.l (a7)+,d7/a0
                    rts
```

Step 2

```
HLines              ; Save registers on the stack.
                    movem.l d6/d7/a0,-(a7)

                    ; A0 points to the video memory.
                    lea     VIDEO_START,a0

                    ; D7.W = Loop counter
                    ;      = Number of iterations - 1 (because DBRA is used).
                    ; -----------------------------
                    ; Number of iterations = Number of white and black stripes
                    ; Height of a white stripe = 8 pixels
                    ; Height of a black stripe = 8 pixels
                    ; Number of white and black stripes = Height of the window / 2x8
                    move.l  #VIDEO_HEIGHT/16-1,d7

\loop               ; Draw a white stripe (8 white lines).
                    ; -----------------------------
                    ; D6.W = Loop counter
                    ;      = Number of iterations - 1 (because DBRA is used).
                    ; -----------------------------
                    ; Number of iterations =  Number of long words
                    ; Number of long words = Number of bytes / 4
                    ; Number of bytes = BYTE_PER_LINE x Height of a white stripe
                    ; Height of a stripe = 8 pixels
                    move.w  #BYTE_PER_LINE*8/4-1,d6
\white_loop         move.l  #$ffffffff,(a0)+
                    dbra    d6,\white_loop

                    ; Draw a black stripe (8 black lines).
                    move.w  #BYTE_PER_LINE*8/4-1,d6
\black_loop         clr.l   (a0)+
                    dbra    d6,\black_loop

                    ; Branch to loop as long as there are
                    ; white and black stripes to draw.
                    dbra    d7,\loop

                    ; Restore registers from the stack and return from subroutine.
                    movem.l (a7)+,d6/d7/a0
                    rts
```