

## Tutorial 1: Solutions

Q1. 1 Mbyte for 8 bpp and 4 Mbytes for 32 bpp.

Q2. Pixel coordinates – (unsigned) integers. World coordinates – typically double/float but it depends on application...

Q3. Steps: 1. Determine which part(s) of the line are inside the Drawing Area; 2. Draw the required visible segment of the line.

```
if (p1 and p2) inside Drawing Area then
    no clipping
else if (p1_x and p2_x) larger than right-vertical edge then
    complete line is outside of window
else if <same for remaining 3 edges of window>
else {
    intersect the line [p1, p2] with each edge separately
    record all intersection points on the edge of the window
    use intersection points to define the clipped line
}
```

Q4.  $X_d = X_w * 0.125 + 0.25$ ,  $Y_d = Y_w * 0.25 + 0.25$  – Normalised Device Coordinates  
 $X_d = X_w * 128 + 255$ ,  $Y_d = Y_w * 256 + 255$  – Pixel Coordinates.