

## CS 371 – Exam Review Problem(s) – RP4 – Out Sept. 15, Due Before Class Sept. 18

1. Suppose we have a canvas that is  $400 \times 600$  and a viewport and WC window determined by

```
gl.viewport(100,100,200,300);  
ortho(-100.0, 100.0, -200.0, 200.0, -1.0, 1.0);
```

If a point has world coordinates  $(-50, -75)$ , what are its coordinates in the viewport coordinate system?

- (a)  $(184, 140)$
  - (b)  $(140, 184)$
  - (c)  $(150, 194)$
  - (d)  $(194, 150)$
  - (e)  $(140, 194)$
2. Suppose we have a canvas that is  $400 \times 600$  and a viewport and WC window determined by

```
gl.viewport(50,100,300,100);  
ortho(-100.0, 100.0, -200.0, 200.0, -1.0, 1.0);
```

If a point has coordinates  $(150, 190)$  in the viewport coordinate system, what are its world coordinates?

- (a)  $(-50, 160)$
  - (b)  $(33, 180)$
  - (c)  $(50, 180)$
  - (d)  $(-50, 180)$
  - (e)  $(-33, 160)$
3. Suppose that we have a canvas that has width 640 and height 480. In this canvas, we want a viewport that is as big as possible and has an aspect ratio of 0.75. To achieve this what numbers should be filled in for the question marks in the glViewport function call below?

```
gl.viewport(0,0,?,?);
```

- (a) 480 360
  - (b) 480 640
  - (c) 640 480
  - (d) 360 480
4. Suppose we have a canvas that is  $400 \times 600$  and a viewport and WC window determined by

```
gl.viewport(0,0,200,100);  
ortho(-100.0, 100.0, -200.0, 200.0, -1.0, 1.0);
```

A line has a slope of 8 in world coordinates. What slope will it appear to have when displayed on the canvas?

- (a) 1
- (b) 2
- (c) 4
- (d) 8
- (e) 16