

## Exam 3 Review - Solutions

MAT 1275CO Spring 2022

Part I.

1. (a)  $\{-8 + \sqrt{17}, -8 - \sqrt{17}\}$

(b)  $\{\frac{1 + \sqrt{3}}{4}, \frac{1 - \sqrt{3}}{4}\}$

2. (a)  $\{-4, 6\}$

(b)  $\{-4 - 5i, -4 + 5i\}$

3. (a)  $\{6 - 2i, 6 + 2i\}$

(b)  $\{\frac{8}{3} - \frac{7}{3}i, \frac{8}{3} + \frac{7}{3}i\}$

Part II.

1. length= 5cm, width=12cm, or width=5cm and length=12cm

2. one leg=9 in, the other 12 in

3. the lengths are 6m, 8m and 10m

Part III.

1. (a) vertex  $(-2, 1)$ , axis of symmetry  $x = -2$ , no (x)-intercepts, (y)-intercept at  $(0, 5)$

(b) vertex  $(0, 5)$ , axis of symmetry  $x = 0$ , no (x)-intercepts, (y)-intercept at  $(0, 5)$

(c) vertex  $(-5, -2)$ , axis of symmetry  $x = -5$ , (x)-intercepts at  $(-6.41, 0)$  and  $(-3.59, 0)$ , (y)-intercept at  $(0, 23)$

(d) vertex  $(2, 17)$ , axis of symmetry  $x = 2$ , (x)-intercepts at  $(-0.915, 0)$  and  $(4.915, 0)$ , (y)-intercept at  $(0, 9)$

- (e) vertex  $(-2, -4)$ , axis of symmetry  $x = -2$ , (x)-intercepts at  $(0, 0)$  and  $(-4, 0)$ ,  
(y)-intercept at  $(0, 0)$

Part IV.

1. radius= $\sqrt{10}$
2. (a) center  $(3, -1)$ , radius=4  
(b) center  $(-1, 0)$ , radius=1  
(c) center  $(-2, 4)$ , radius=2  
(d) center  $(-5, -3)$ , radius=4

Part V.

1.  $(2, \frac{3}{2})$ ,  $(-7, 6)$
2.  $(-2, 1)$ ,  $(-2, -1)$ ,  $(1, 2)$ ,  $(1, -2)$
3.  $(2, 1)$ ,  $(-2, 1)$ ,  $(2, -1)$ ,  $(-2, -1)$