

# ALEKS<sup>®</sup> Test 3 #4

College Algebra with Trigonometry / Math 005 201608 - 09 (Prof. Sitaraman)

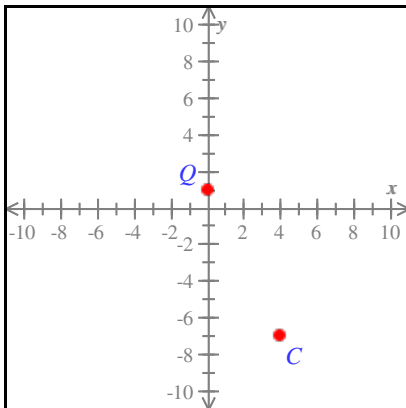
Student Name/ID:

**Instructor Note:**

EACH PROBLEM 15 POINTS ; WHAT YOU GET OVER 100 IS EXTRA CREDIT.....  
NO CALCULATORS OR CELLPHONES.....  
ANSWERS WITHOUT CORRECT REASONING AND STEP BY STEP SOLUTION WILL GET NO CREDIT

1. Calculate the distance between the points  $Q = (0, 1)$  and  $C = (4, -7)$  in the coordinate plane.

Give an exact answer (not a decimal approximation).

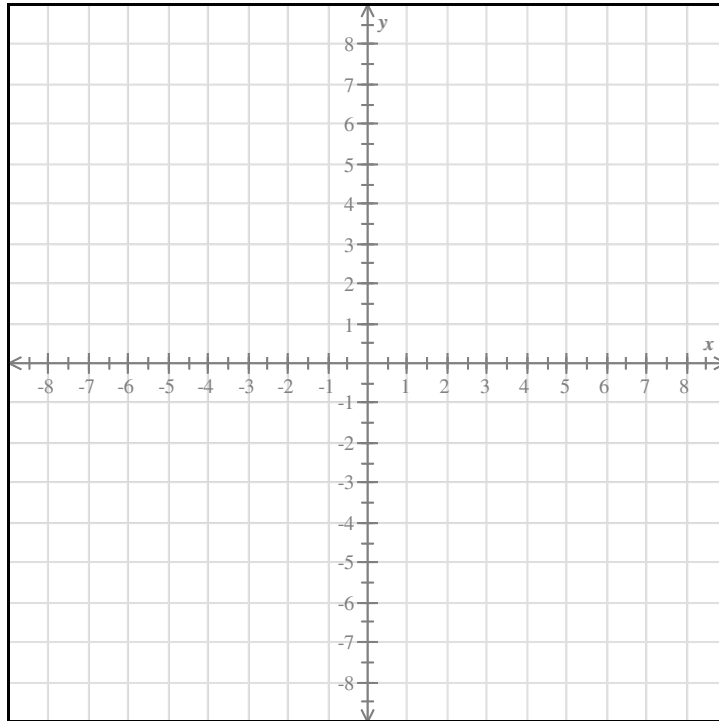


2. The equation of a circle is given below. Identify the radius and center. Then graph the circle.

$$x^2 + y^2 + 2x - 6y - 6 = 0$$

Radius: \_\_\_\_\_

Center: (\_\_\_\_\_, \_\_\_\_\_)



3. Find an equation of the circle whose diameter has endpoints  $(-1, -3)$  and  $(5, 1)$ .

4. Consider the line  $8x + 7y = -4$ .

(a) Find the equation of the line that is perpendicular to this line and passes through the point  $(-5, -2)$ .

(b) Find the equation of the line that is parallel to this line and passes through the point  $(-5, -2)$ .

5. Find the  $y$ -intercept and the slope of the line.

$$4x + 2y = 6$$

Write your answers in simplest form.

6. Suppose that the functions  $u$  and  $w$  are defined as follows.

$$u(x) = 2x + 2$$

$$w(x) = -2x^2$$

Find the following.

$$(u \circ w)(-3)$$

$$(w \circ u)(-3)$$

7. The function  $g$  is defined below.

$$g(x) = \frac{x^2 + 11x + 18}{x^2 - 4}$$

Find all values of  $x$  that are NOT in the domain of  $g$ .

If there is more than one value, separate them with commas.

8. Suppose that the function  $f$  is defined, for all real numbers, as follows.

$$f(x) = \begin{cases} \frac{1}{2}x + 2 & \text{if } x < -1 \\ (x-1)^2 - 3 & \text{if } -1 \leq x \leq 2 \\ -2 & \text{if } x > 2 \end{cases}$$

Find  $f(-1)$ ,  $f(0)$ , and  $f(4)$ .

$$f(-1)$$

$$f(0)$$

$$f(4)$$

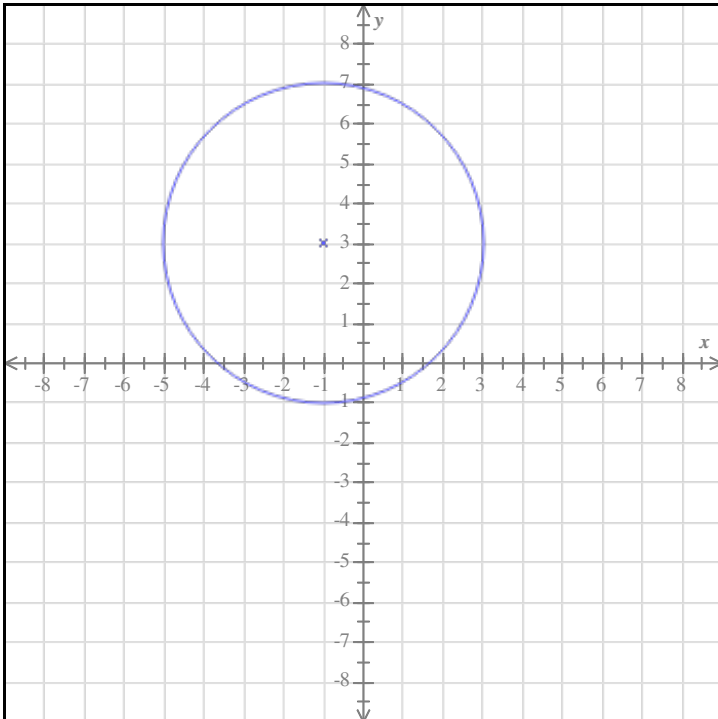
# Test 3 #4 Answers for class Math 005 201608 - 09

1. Distance unsimplified:  $\sqrt{80}$

Distance simplified:  $4\sqrt{5}$

2. Radius: 4

Center:  $(-1, 3)$



3.  $(x - 2)^2 + (y + 1)^2 = 13$

4.

Equation of perpendicular line:  $y = \frac{7}{8}x + \frac{19}{8}$

Equation of parallel line:  $y = -\frac{8}{7}x - \frac{54}{7}$

5. y-intercept: 3

slope:  $-2$

6.  $(u \circ w)(-3) = -34$

$(w \circ u)(-3) = -32$

7.  $x = -2, 2$

8.  $f(-1) = 1$

$f(0) = -2$

$f(4) = -2$