

Section P.1 (Optional) (Question # 19)

Find all points having an x-coordinate of 3 whose distance from the point $(-1, -4)$ is 5.

The point(s) is(are) .

(Type an ordered pair. Use a comma to separate answers as needed.)

Soln: Distance from (x, y) to $(-1, -4)$ is 5:

$$\sqrt{(x - (-1))^2 + (y - (-4))^2} = 5$$

x-coordinate is 3:

$$\sqrt{(3 - (-1))^2 + (y - (-4))^2} = 5$$

Now solve for y:

$$(3 - (-1))^2 + (y - (-4))^2 = 5^2 = 25$$

$$4^2 + (y + 4)^2 = 25$$

$$(y + 4)^2 = 25 - 16 = 9$$

$$y + 4 = \pm\sqrt{9} = \pm 3$$

$$y = -4 \pm 3$$

From this, you should be able to build the answer. It's a distance/radius of circle problem, depending on how you look at it. You'll end up with 2 points.