Circles and the Pythagorean Theorem

Recall that the Pythagorean Theorem can be used to find the distance from one point to another by drawing a right triangle and solving for the hypotenuse. Use the Pythagorean Theorem to find the length of the radius of a circle given a point on the circle and the center of the circle.

Point on the circle	Center of the circle	Horizontal Leg of the right triangle	Vertical leg of the right triangle	Pythagorean Theorem and work $Leg^2 + Leg^2 = hypotenuse$ $a^2 + b^2 = c^2$	Length of the radius
(5, 7)	(2, 3)	5-2 = 3	7-3 = 4	$(5-2)^2 + (7-3)^2 = r^2$ $3^2 + 4^2 = r^2$ $9+16 = r^2$ $25 = r^2$ $\sqrt{25} = \sqrt{r^2}$ $5 = r$	5
(1, 4)	(6, 16)			**(-)² + (-)² = r²**	
(-2, 2)	(13, -6)			**(-)² + (-)² = r²**	
(x, y)	(h, k)			**(-)² + (-)² = r²**	