

Given the points $A(-2, -4)$ and $B(4, 2)$ find the equation of the circle with diameter \overline{AB} .

$$\frac{-2+4}{2} \quad \frac{-4+2}{2}$$

$$(1, -1) \quad (-2-4)^2 + (-4-2)^2$$
$$36 + 36$$

$$(x-1)^2 + (y+1)^2 = 18$$

$$d = \sqrt{(x-x)^2 + (y-y)^2}$$

$$d = \sqrt{(-2-1)^2 + (-4+1)^2}$$

$$d = \sqrt{9+9}$$

$$d = \sqrt{18}$$

$$(\sqrt{18})^2 = r^2$$