

Distance Formula Problems

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$$\frac{WQ}{QR} = \frac{3}{4} \quad (1)$$

$$WQ \times 4 = QR \times 3 \quad (2)$$

$$WQ = \frac{3QR}{4} \quad (3)$$

$$(4)$$

$$\frac{RW}{QR} = \frac{1}{4} \quad (5)$$

$$4 * RW = QR \quad (6)$$

$$RW = \frac{QR}{4} \quad (7)$$

$$RW = \sqrt{(x_w - x_r)^2 + (y_w - y_r)^2} \quad (8)$$

$$WQ = \sqrt{(x_q - x_w)^2 + (y_q - y_w)^2} \quad (9)$$

$$Q = (3, 3) \quad (10)$$

$$R = (11, 11) \quad (11)$$

$$QR = \sqrt{(11 - 3)^2 + (11 - 3)^2} = \sqrt{128} \quad (12)$$

$$WQ = \frac{3\sqrt{128}}{4} \quad (13)$$

$$RW = \frac{\sqrt{128}}{4} \quad (14)$$

$$\frac{\sqrt{128}}{4} = \sqrt{(11-x)^2 + (11-y)^2} \quad (15)$$

$$\left(\frac{\sqrt{128}}{4}\right)^2 = (\sqrt{(11-x)^2 + (11-y)^2})^2 \rightarrow \frac{128}{16} = (11-x)^2 + (11-y)^2 \quad (16)$$

$$8 = (121 - 22x + x^2) + (121 - 22y + y^2) \quad (17)$$

$$-236 = x^2 - 22x + y^2 - 22y \quad (18)$$

$$72 = (9 - 18x + x^2) + (9 - 18y + y^2) \quad (19)$$

$$8 = (121 - 22x + x^2) + (121 - 22y + y^2) \quad (20)$$

$$(3-x) + (3-y) = 6\sqrt{2} \quad (21)$$

$$(11-x) + (11-y) = 2\sqrt{2} \quad (22)$$

$$(23)$$