

$$10. \quad m_1 = \frac{5-1}{-2-3} = \frac{4}{-5} = -\frac{4}{5} \quad m_2 = \frac{-2-2}{0-1} = \frac{-4}{-1} = 4$$

Since the two lines have the same slope, they are parallel.

$$14. \quad y-0 = \frac{1}{3}(x+6) \quad y = \frac{1}{3}x + 2$$

$$18. \quad m_1 = \frac{4-0}{-2-2} = \frac{4}{-4} = -1 \quad m_2 = \frac{-2-4}{-3-3} = \frac{-6}{-6} = 1$$

Since the slopes of the two lines have opposite signs and are reciprocals of each other, the two lines are perpendicular.

$$24. \quad \begin{array}{l} y-7x=6 \rightarrow y=7x+6 \\ y+7x=8 \rightarrow y=-7x+8 \end{array} \quad \text{The slopes are not equal, so the lines are NOT parallel.}$$

$$30. \quad m_{AB} = \frac{4-2}{3-0} = \frac{2}{3} \quad m_{BC} = \frac{7-4}{2-3} = \frac{3}{-1} = -3 \quad m_{CD} = \frac{5-7}{-1-2} = \frac{-2}{-3} = \frac{2}{3}$$

$$m_{AD} = \frac{5-2}{-1-0} = \frac{3}{-1} = -3 \quad \text{Since opposite sides slopes are equal, they are parallel.}$$

$$36. \quad \begin{array}{l} y=-x-7 \rightarrow y=-x-7 \\ y-x=20 \rightarrow y=x+20 \end{array} \quad \text{Since the slopes are opposite reciprocals, they are perpendicular.}$$

$$42. \quad m_{GH} = \frac{8-2}{5-3} = \frac{6}{2} = 3 \quad m_{HK} = \frac{10-8}{0-5} = \frac{2}{-5} = -\frac{2}{5} \quad m_{GK} = \frac{10-2}{0-3} = \frac{8}{-3} = -\frac{8}{3}$$

Since none of the slopes are opposite reciprocals, they are not perpendicular, so there cannot be a right angle.

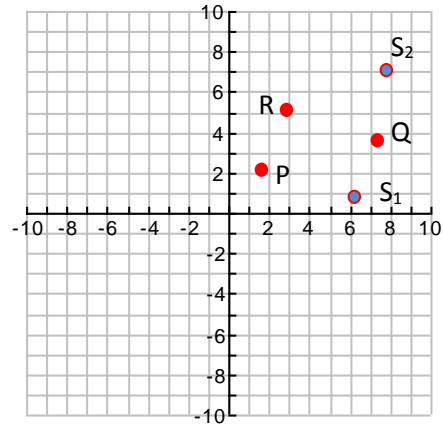
46. Since the slope from R to Q is down 1, over 4,
if you go the same down 1, over 4 from P,

S₁ should be placed at (6, 1) OR

Since the slope from P to R is up 3, over 1,

if you go the same up 3, over 1 from Q,

S₂ should be placed at (8, 7)



$$52. \quad P = s + s + s + s = 4s \quad 20 = 4s \quad 5 = s$$

$$A = s^2 \quad A = (5)^2 \quad \text{Area} = 25 \text{ ft. sq.}$$