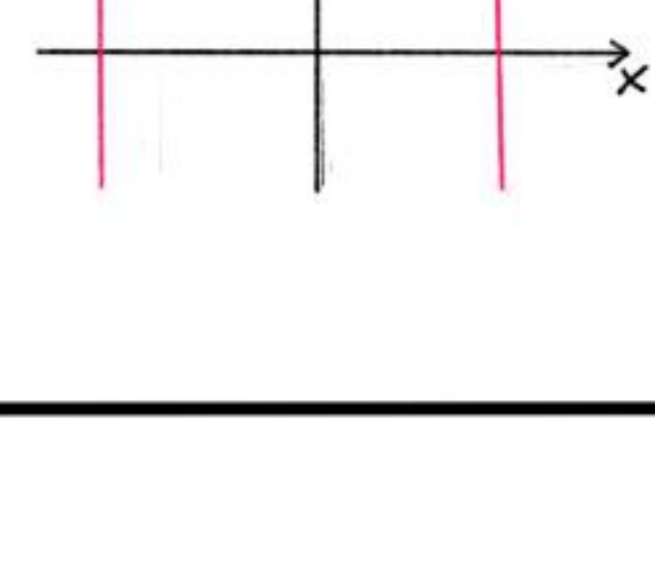


As retas (r) e (s) são paralelas ou concorrentes?

1. (r) $2x - 3 = 0$ e (s) $3x + 11 = 0$

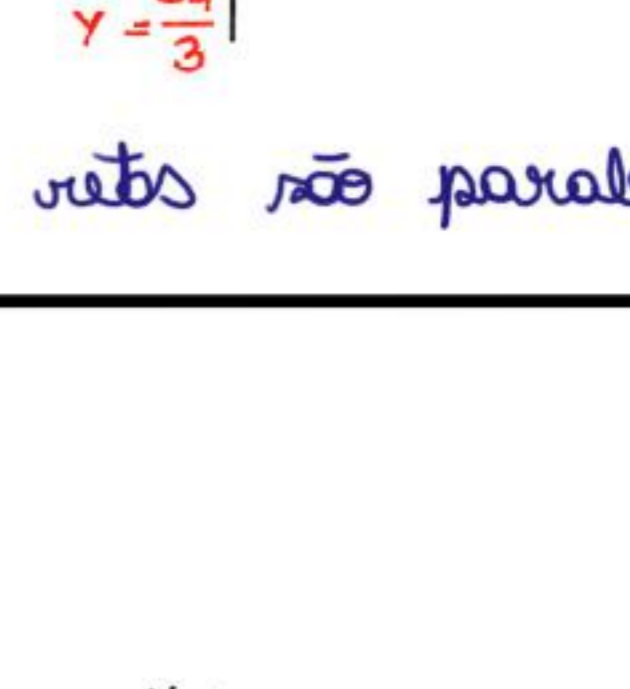
(r): $2x - 3 = 0 \rightarrow x = \frac{3}{2} \rightarrow by = 0$
 (s): $3x + 11 = 0 \rightarrow x = -\frac{11}{3} \rightarrow by = 0$



As retas são paralelas

2. (r) $3y + 4 = 0$ e (s) $5y - 1 = 0$

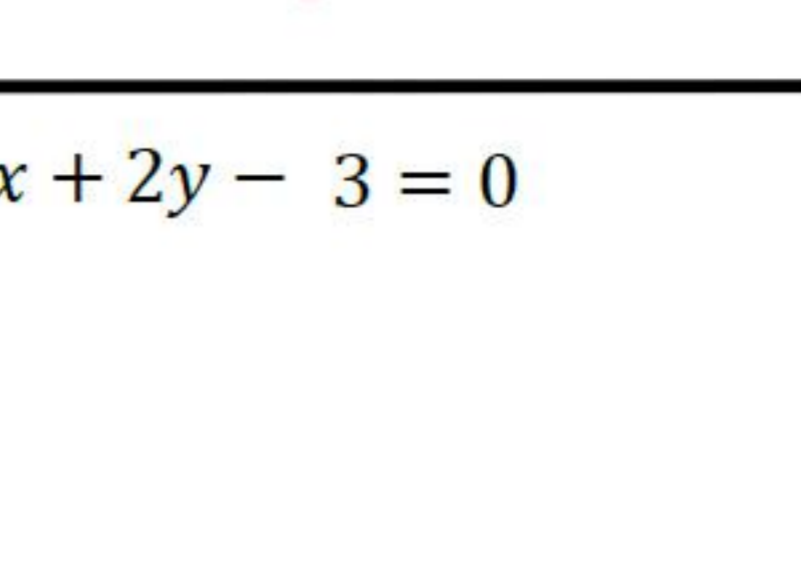
(r): $3y + 4 = 0 \rightarrow y = -\frac{4}{3} \rightarrow ax = 0$
 (s): $5y - 1 = 0 \rightarrow y = \frac{1}{5} \rightarrow ax = 0$



As retas são paralelas.

3. (r) $2y - 1 = 0$ e (s) $2x + 1 = 0$

(r) $2y - 1 = 0 \rightarrow y = \frac{1}{2} \rightarrow ax = 0$
 (s) $2x + 1 = 0 \rightarrow x = -\frac{1}{2} \rightarrow by = 0$



As retas são concorrentes

4. Para que valor de a as retas $(a + 1)x + 2y - 3 = 0$ e $3x - 5y - 1 = 0$ são paralelas?

(r): $(a + 1)x + 2y - 3 = 0 \rightarrow 2y = 3 - (a + 1)x \rightarrow y = -\frac{(a + 1)x}{2} + \frac{3}{2} \rightarrow m_r = -\frac{(a + 1)}{2}$

(s): $3x - 5y - 1 = 0 \rightarrow 5y = 3x - 1 \rightarrow y = \frac{3x - 1}{5} \rightarrow m_s = \frac{3}{5}$

s//r

$m_r = m_s$

$-\frac{(a + 1)}{2} = \frac{3}{5} \rightarrow -(a + 1) = \frac{6}{5}$

$-a - 1 = \frac{6}{5} \rightarrow -a = \frac{6}{5} + 1 \rightarrow a = -\frac{11}{5}$

$a = -\frac{11}{5}$

5. Determine a equação da reta que passa por P(3, 7) e é paralela à reta (r) $x + 4y + 50 = 0$.

(r): $x + 4y + 50 = 0 \rightarrow 4y = -50 - x \rightarrow y = -\frac{(x + 50)}{4} \rightarrow m_r = -\frac{1}{4}$

(s): $(y - 7) = \left(-\frac{1}{4}\right) \cdot (x - 3) \rightarrow m_s = m_r$

$y - 7 = -\frac{1}{4}x + \frac{3}{4}$

$y = -\frac{1}{4}x + \frac{3}{4} + 7$

$y = -\frac{1}{4}x + \frac{31}{4}$

$4y + x - 31 = 0$

6. Obtenha a reta que passa por P(-1, -1) e é paralela à reta $y = 6x - 1$.

$y = 6x - 1 \rightarrow m = 6$

(r): $(y - (-1)) = 6 \cdot (x - (-1))$

$y + 1 = 6x + 6$

$y = 6x + 5$

$6x - y + 5 = 0$

Dê o coeficiente angular de uma reta s perpendicular à reta r, nos casos:

7. $m_r = \frac{2}{5}$

Perpendicularidade

$r \perp s$

$m_r = \frac{2}{5}$

$m_s = -\frac{1}{m_r}$

$m_s = -\frac{1}{(2/5)}$

$m_s = -\frac{5}{2}$

8. $m_r = -\frac{1}{6}$

$r \perp s$

$m_s = -\frac{1}{m_r}$

$m_s = -\frac{1}{(-1/6)}$

$m_s = 6$

9. $m_r = -3$

$m_s = -\frac{1}{-3}$

$m_s = \frac{1}{3}$

10. Para que valor de k as retas (r) $x - ky + k^2 = 0$ e (s) $3x + 2y - 2k = 0$ são perpendiculares?

(r): $x - ky + k^2 = 0 \rightarrow ky = x + k^2 \rightarrow y = \frac{x}{k} + k \rightarrow m_r = \frac{1}{k}$

(s): $3x + 2y - 2k = 0 \rightarrow 2y = -3x + 2k \rightarrow y = -\frac{3}{2}x + k \rightarrow m_s = -\frac{3}{2}$

$r \perp s$

$m_s = -\frac{1}{m_r}$

$-\frac{3}{2} = -\frac{1}{(1/k)}$

$-\frac{3}{2} = -k \rightarrow k = \frac{3}{2}$

11. Determine a equação da reta que passa por P(3, -2) e é perpendicular à reta (r) $5x + 6y + 7 = 0$.

(r): $5x + 6y + 7 = 0 \rightarrow 6y = -5x - 7 \rightarrow y = -\frac{5x - 7}{6} \rightarrow m_r = -\frac{5}{6}$

$r \perp s$

$m_s = -\frac{1}{m_r}$

$m_s = -\frac{1}{(-5/6)}$

$m_s = \frac{6}{5}$

(s): $(y - (-2)) = \frac{6}{5} \cdot (x - 3) \rightarrow y + 2 = \frac{6x}{5} - \frac{18}{5}$

$y = \frac{6x}{5} - \frac{18}{5} - 2 \rightarrow 5y = 6x - 28$

$6x - 5y - 28 = 0$

12. Obtenha a reta que passa por P(0, -1) e é perpendicular à reta (r) $y = 2x - 4$.

$y = 2x - 4 \rightarrow m_r = 2 \rightarrow m_s = -\frac{1}{2}$

(s): $(y - (-1)) = -\frac{1}{2} \cdot (x - 0)$

$y = -\frac{1}{2}x - 1$

$y = -\frac{(x + 2)}{2}$

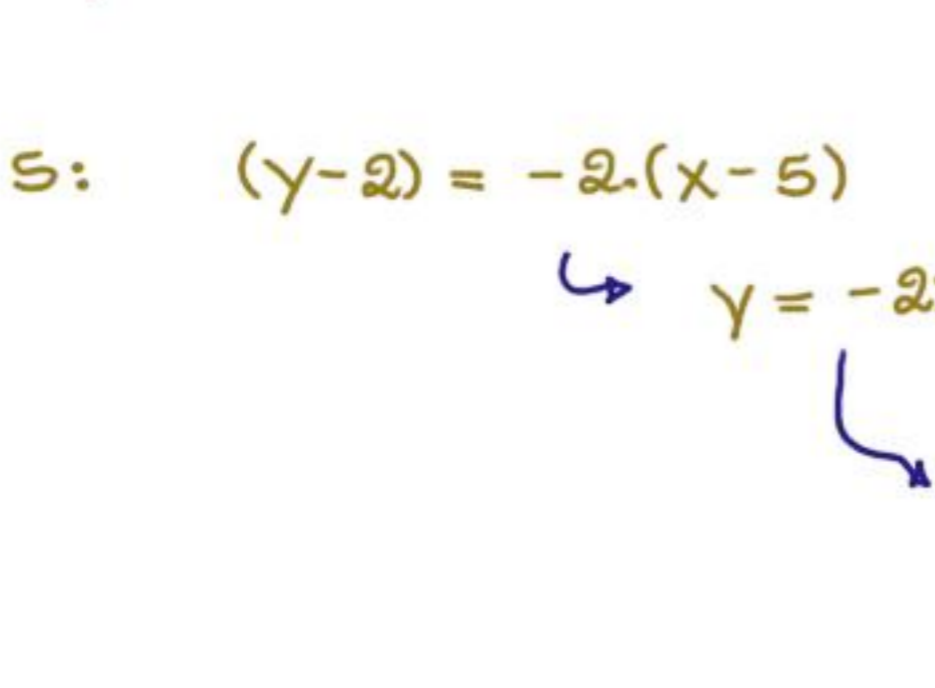
$x + 2 + 2y = 0$

13. Determine a reta perpendicular à reta (r) $y = \frac{x}{2} - \frac{1}{2}$ no seu ponto de abscissa 5.

(r): $y = \frac{x}{2} - \frac{1}{2}$

$m_r = \frac{1}{2} \rightarrow m_s = -\frac{1}{(1/2)}$

$m_s = -2$



r: $y = \frac{x}{2} - \frac{1}{2}$

Im $x = 5$

$y = \frac{5}{2} - \frac{1}{2}$

$y = 2$

P(5, 2)

s: $(y - 2) = -2 \cdot (x - 5)$

$y = -2x + 10 + 2$

$y = -2x + 12$

$2x + y - 12 = 0$

14. Determine a reta que passa por A(-1, -2) e é perpendicular a BC, dados B(0, 3) e C(2, 0).

BC: $\begin{vmatrix} 0 & 3 \\ 2 & 0 \\ x & y \\ 0 & 3 \end{vmatrix}$

$0 + 2y + 3x - 6 = 0 \rightarrow 3x + 2y = 6 \rightarrow y = \frac{6 - 3x}{2} \rightarrow m_{BC} = -\frac{3}{2}$

$t \perp BC$

$m_t = -\frac{1}{m_{BC}}$

$m_t = -\frac{1}{(-3/2)}$

$m_t = \frac{2}{3}$ para ser (-1, -2)

$y - (-2) = \frac{2}{3} \cdot (x - (-1))$

$3y + 6 = 2x + 2$

$2x - 3y - 4 = 0$