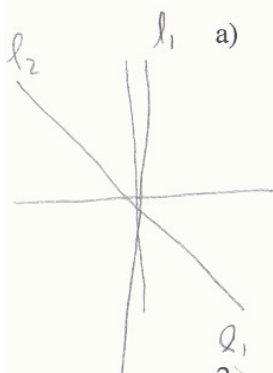


Analytic Geometry CP Review Sheet 1.6 – 1.8

Name

KEY

1. Find the angle from l_1 to l_2 with slopes m_1 and m_2 , respectively.



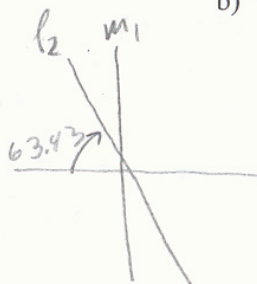
a) $m_1 = 5, m_2 = -1$

$$\tan \alpha = \frac{m_2 - m_1}{1 + m_1 m_2}$$

$$= \frac{-1 - 5}{1 + (-5)}$$

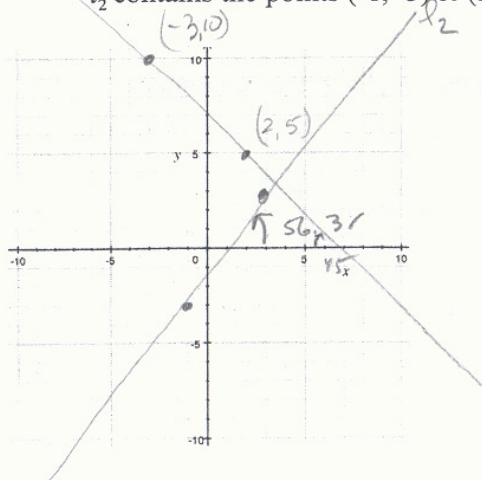
$$= \frac{-6}{-4}$$

$$= \frac{3}{2} \approx 56^\circ$$



b) m_1 does not exist, $m_2 = -2$
 $\tan \alpha = -2 \approx -63.43$
 $90 + (-63.43) = 26.57^\circ$

2. Find the angle from l_1 to l_2 where l_1 contains the points (2, 5) & (-3, 10) and l_2 contains the points (-1, -3) & (3, 3).



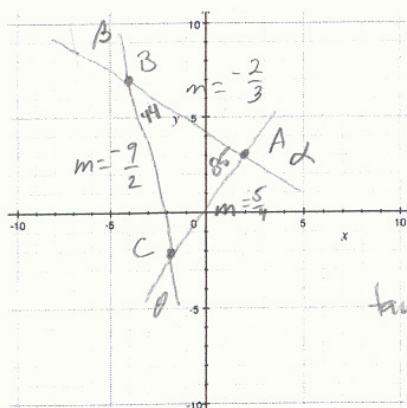
$l_1: m_1 = \frac{10 - 5}{-3 - 2} = \frac{5}{-5} = -1$
 $l_2: m_2 = \frac{3 - (-3)}{3 - (-1)} = \frac{6}{4} = \frac{3}{2}$

$$\tan \alpha = \frac{m_2 - m_1}{1 + m_1 m_2} = \frac{-1 - \frac{3}{2}}{1 + (-1)(\frac{3}{2})} = \frac{-\frac{5}{2}}{\frac{2}{2} - \frac{3}{2}} = \frac{-\frac{5}{2}}{-\frac{1}{2}}$$

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

$$\approx 78.69^\circ$$

3. Draw a triangle with vertices: A(2, 3), B(-4, 7), and C(-2, -2). Find each angle of the triangle to the nearest degree.



$m = \frac{-2 - 3}{-2 - 2} = \frac{-5}{-4} = \frac{5}{4}$

85, 44, 51

$m = \frac{7 - 3}{-4 - 2} = \frac{4}{-6} = -\frac{2}{3}$

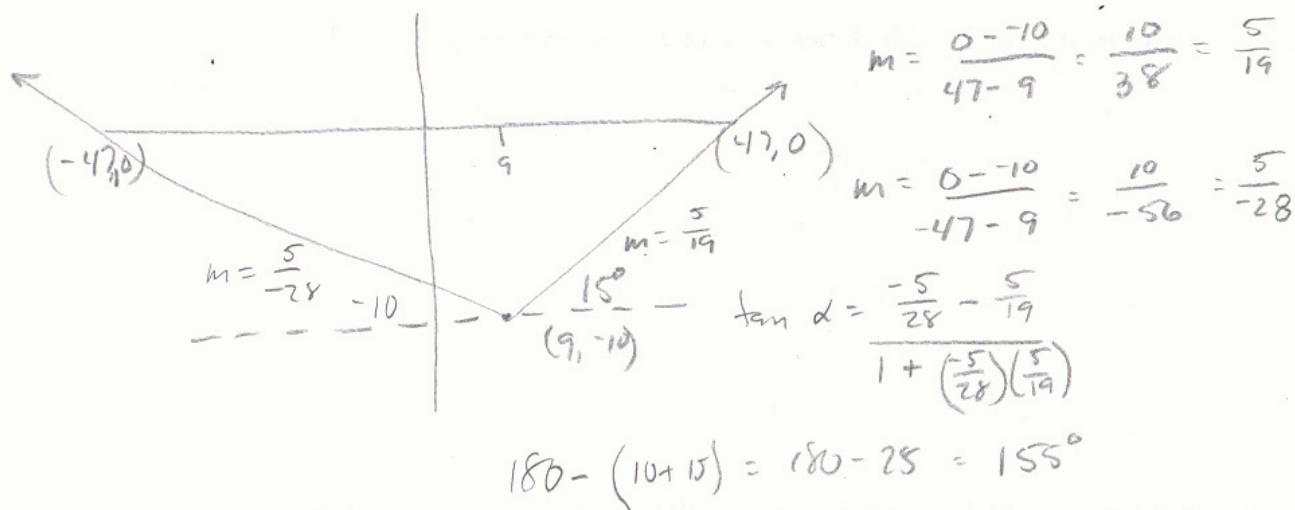
$m = \frac{-2 - 7}{-2 - 4} = \frac{-9}{-6} = \frac{3}{2}$

$\tan \alpha = \frac{m_2 - m_1}{1 + m_1 m_2} = \frac{\frac{5}{4} - (-\frac{2}{3})}{1 + (-\frac{2}{3})(\frac{5}{4})} = \frac{\frac{15}{12} + \frac{8}{12}}{\frac{12}{12} - \frac{10}{12}} = \frac{\frac{23}{12}}{\frac{2}{12}} = \frac{23}{12} \cdot \frac{12}{2} = \frac{23}{2} \approx 85^\circ$

$\tan \beta = \frac{-\frac{2}{3} + \frac{9}{2}}{1 + (-\frac{2}{3})(\frac{3}{2})} = \frac{-\frac{4}{6} + \frac{27}{6}}{\frac{6}{6} + \frac{18}{6}} = \frac{\frac{23}{6}}{\frac{24}{6}} = \frac{23}{6} \cdot \frac{6}{24} = \frac{23}{24} \approx 44^\circ$

$180 - 129 = 51^\circ$

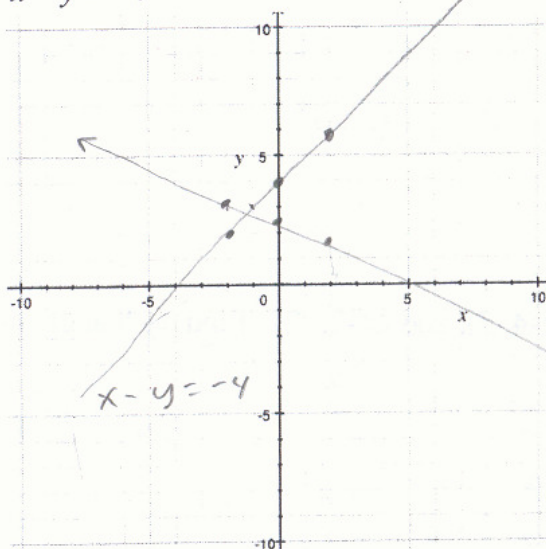
4. A television camera is located 10 ft. from the sideline of a basketball court that is 94 ft. long. The camera is located 9 ft. from midcourt. What angle must be swept through to cover all the action on the court? Draw a diagram.



5. Find the points of intersection and sketch the graphs of the equations

$$2x + 5y = 13$$

$$x - y = -4$$



$$2x + 5y = 13$$

$$5x - 5y = -20$$

$$7x = -7$$

$$x = -1$$

$$(-1, 3)$$

$$2(-1) + 5y = 13$$

$$-2 + 5y = 13$$

$$5y = 15$$

$$y = 3$$

$$\begin{aligned} 2x + 5y &= 13 \\ 5y &= 13 - 2x \\ y &= \frac{13 - 2x}{5} \end{aligned}$$

x	y
-2	$\frac{17}{5}$
0	$\frac{13}{5}$
2	$\frac{9}{5}$

$$y = x + 4$$

x	y
-2	2
0	4
2	6