

#1b)

① If two lines are parallel, the slopes will be equal.
 $m_1 = \frac{a}{b}$ $m_2 = \frac{a}{b}$
 $m_1 = \frac{a}{b} \rightarrow m_2 = \frac{a}{b}$

② If two lines are perpendicular, $m_1 m_2 = -1$
 $m_1 = \frac{a}{b}$ $m_2 = -\frac{b}{a}$
 $m_1 = \frac{a}{b}$ $m_2 = -\frac{b}{a}$
 $m_1 m_2 = \frac{a}{b} \cdot -\frac{b}{a} = -1$

L_1 : slope of $\frac{a}{b}$
 point $(a, 0)$
 $y = mx + b$
 $y = \frac{a}{b}x + b$
 $0 = \frac{a}{b}(a) + b$
 $0 = \frac{a^2}{b} + b$
 $-\frac{a^2}{b} = b$

#1c)

$m_1 = \frac{3}{4}$ $m_2 = -\frac{4}{3}$

$ab = 4 \cdot \sqrt{a^2 + b^2}$
 $\frac{ab}{\sqrt{a^2 + b^2}} = 4$

$\frac{6 \times 8}{10} = 4.8 \neq 4$

#11)

$x - 2y + 8 = 0$ $2x + y + 6 = 0$
 $\frac{x}{2} + 4 = y$ $y = -2x - 6$

$m = \frac{1}{2}$
 $y = \frac{1}{2}x + b$
 $2 = 3 + b$
 $y = \frac{x}{2} - 1$

$m = -2$
 $y = -2x + b$
 $2 = -12 + b$
 $y = -2x + 14$

#6)

$y = b$
 $y = ax + b$
 $m_1 = a$

$x = c$
 $x = ay + c$
 $x - c = ay$
 $\frac{x}{a} - \frac{c}{a} = y$
 $m_2 = \frac{1}{a}$

$$m_1 \times m_2 = -1$$

$$a = 0$$

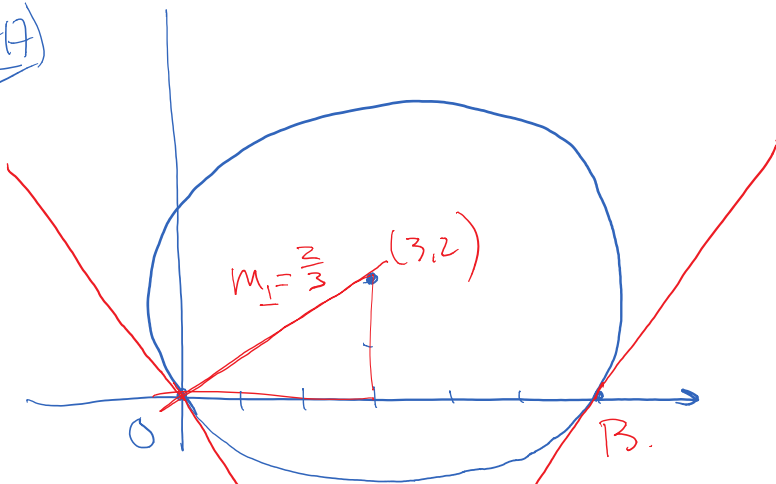
$$a\left(\frac{1}{a}\right) = -1$$

ϵ

$$1 = -1$$

No soln

#4)



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

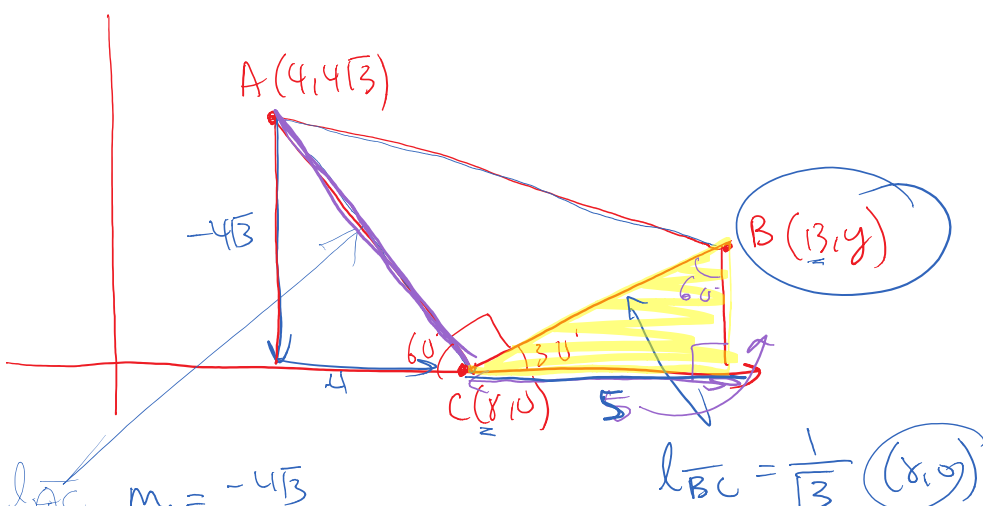
$$y = -\frac{3x}{2} + 0$$

$$P(3, ?)$$

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

$$y = -\frac{9}{2}$$

#8)



{ ① 2 lines
so slope
multiple
AC slope

as are the
pes must
y to -1.

$$c = \boxed{-\sqrt{3}}$$

$$l_{AC} \quad m_1 = -\frac{4\sqrt{3}}{4}$$

$$m_2 = \sqrt{3}$$

$$l_{BC} = \frac{1}{\sqrt{3}} \quad (x, y)$$

$$y = \frac{x}{\sqrt{3}} + b \quad 0 = \frac{8}{\sqrt{3}} + b$$

$$y = \frac{x}{\sqrt{3}} - \frac{8}{\sqrt{3}} \quad -\frac{8}{\sqrt{3}} = b$$

$$y = \frac{13}{\sqrt{3}} - \frac{8}{\sqrt{3}} = \frac{5}{\sqrt{3}}$$

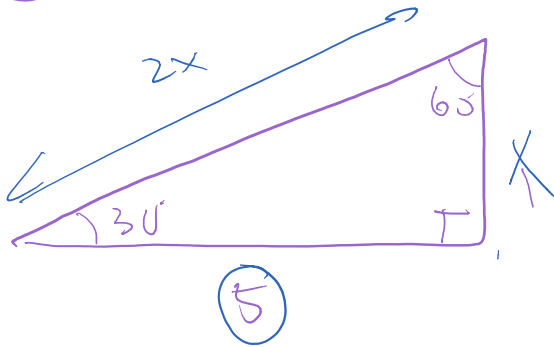
HL slope

BC slope

$$\frac{y}{5}$$

$$\sqrt{3}$$

(3)



$$x^2 + 5^2 = (2x)^2$$

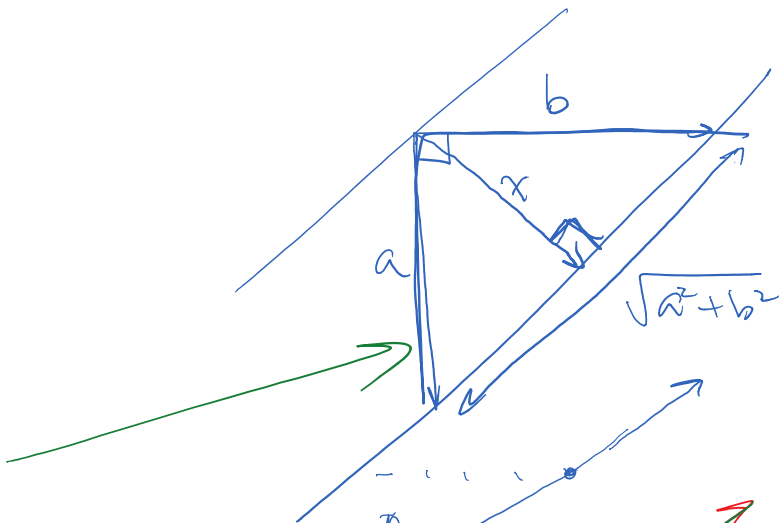
$$x^2 + 25 = 4x^2$$

$$25 = 3x^2$$

$$\sqrt{\frac{25}{3}} = \sqrt{x^2}$$

$$\frac{5}{\sqrt{3}} = x$$

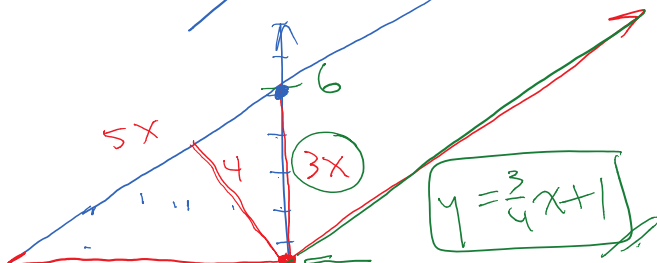
14) DISTANCE B/W 2 lines:



$$\frac{a \times b}{2} = \frac{x \sqrt{a^2 + b^2}}{2}$$

$$ab = x \sqrt{a^2 + b^2}$$

$$\frac{ab}{\sqrt{a^2 + b^2}} = x$$



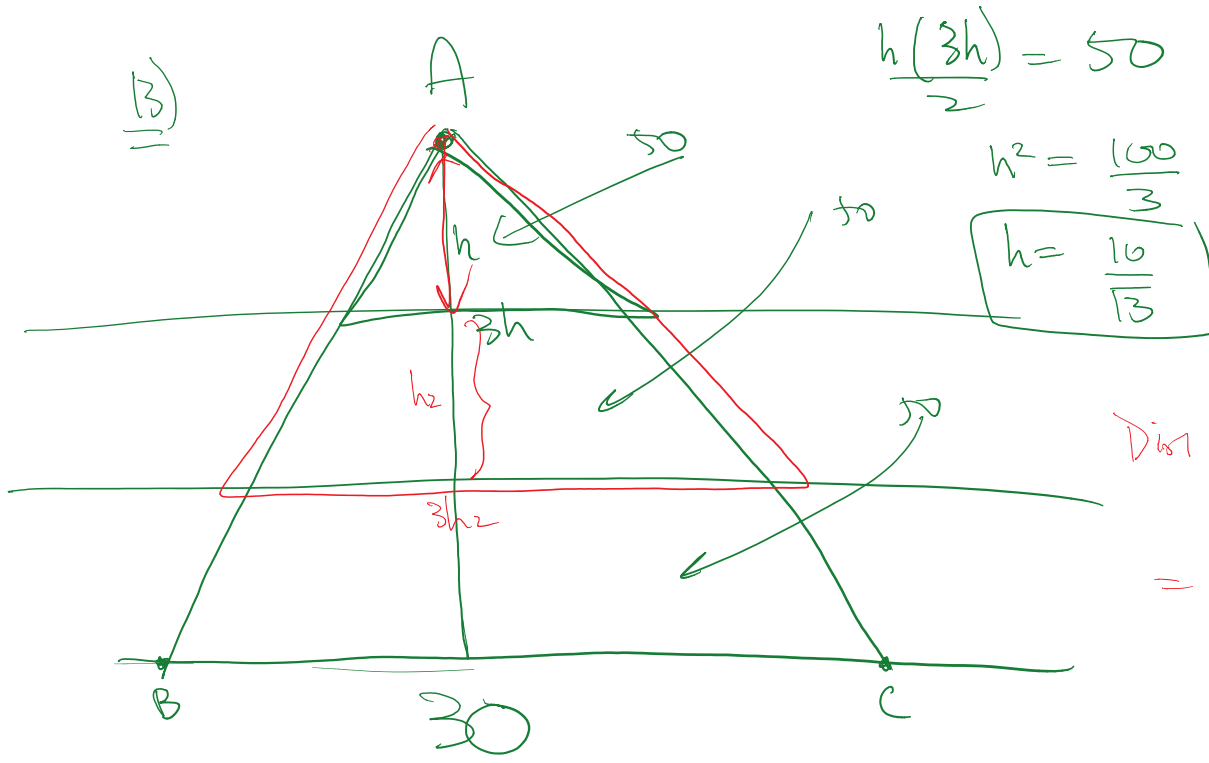
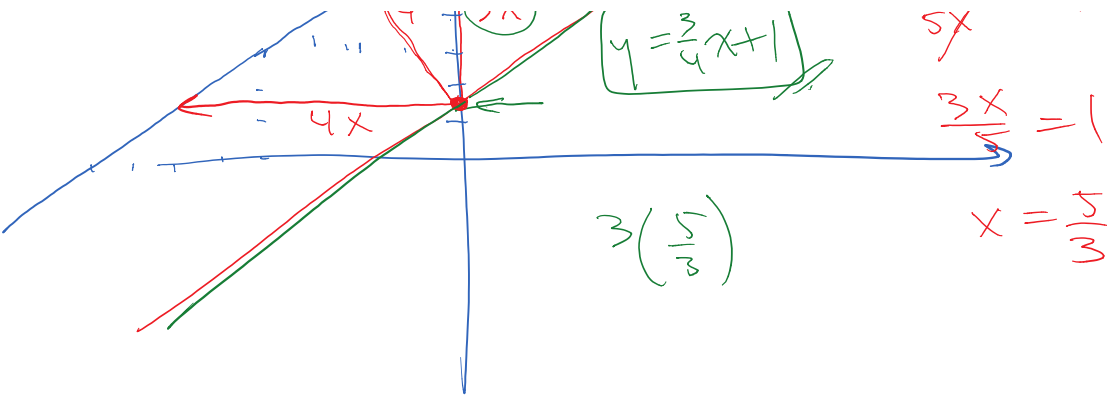
$$\frac{(3x)(4x)}{5x} = 4$$

$$x = \boxed{-13}$$

$$x = \frac{y-0}{13-8} = \boxed{\frac{y}{5}}$$

$$-\left(\frac{y}{5}\right) = -1$$

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



$\frac{(h_2)(3h_2)}{2} =$
 $h_2^2 =$
 $h_2 = \frac{10}{\sqrt{3}}$

$Dist = \frac{10\sqrt{2}}{\sqrt{3}} - \frac{10}{\sqrt{3}}$
 $= \frac{10}{\sqrt{3}} (\sqrt{2} - 1)$

100

200
3

12
3