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MA7

1) A(6, -5) B(-2, 1) C(1, 3)

Distance between PAB =  $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$\sqrt{(-2-6)^2 + (1-(-5))^2} = \sqrt{-8+16}$

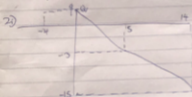
PAB =  $\sqrt{100} = 10$

$|AC| = \sqrt{(0-6)^2 + (3-(-5))^2}$   
 $= \sqrt{6^2 + 8^2} = \sqrt{100}$

$|AC| = 10$

$|BC| = \sqrt{(0-(-2))^2 + (3-1)^2} = \sqrt{(-2)^2 + 2^2}$   
 $= \sqrt{4+4} = 2\sqrt{2}$

It is an isosceles triangle because PAB and PBC are equal



a) P divides AC internally, hence  $y = \frac{ky_1 + ly_2}{L+k}$

$(x, y) = (-4, 9) (x_2, y_2) (14, -15) (x_1, y_1) = (5, -3)$

$-3 = \frac{L(9) + (-15)k}{L+k}$

$= -3L - 3k = 9L - 15k$

$= -3L - 9L = -15 + 3k$

$= -12L = -12k$

$\therefore \frac{L}{k} = \frac{1}{1}$

b) R divides PA externally, hence  $y = \frac{ky_1 - ly_2}{L-k}$

$(x, y) (5, -3) (x_2, y_2) = (-4, 9) (14, -15)$

$-15 = \frac{-3L - 15k}{L-k} = \frac{-15L + 15k}{L-k} = \frac{3L - 15k}{L-k}$

$-15L + 3L = 15k - 15k$

$\therefore 12L = -24k$

$\therefore \frac{L}{k} = \frac{2}{1}$