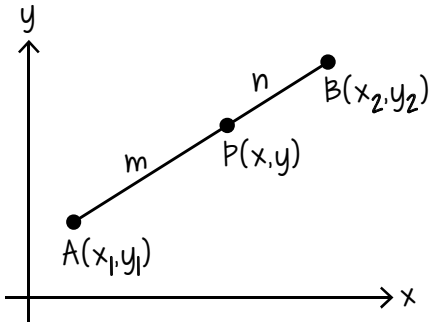
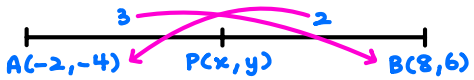
WORKSHEET 1: PEMBAHAGI TEMBERENG GARIS

$$P(x,y) = \left(\frac{nx_1 + mx_2}{m+n} , \frac{ny_1 + my_2}{m+n} \right)$$



1. Titik P membahagi tembereng garis yang menyambungkan titik A(-2,-4) dan B(8,6) dengan nisbah 3 : 2. Cari koordinat titik P.

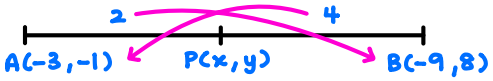


$P(x,y) = \left(\frac{2(-2)+3(8)}{3+2} , \frac{2(-4)+3(6)}{3+2} \right)$

$= \left(\frac{20}{5} , \frac{10}{5} \right)$

$= (4,2)$

2. Titik P membahagi tembereng garis yang menyambungkan titik A(-3,-1) dan B(-9,8) dengan nisbah 2 : 4. Cari koordinat titik P.

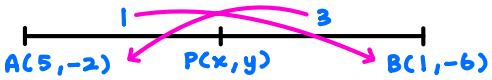


$P(x,y) = \left(\frac{4(-3)+2(-9)}{2+4} , \frac{4(-1)+2(8)}{2+4} \right)$

$= \left(\frac{-30}{6} , \frac{12}{6} \right)$

$= (-5,2)$

3. Titik P membahagi tembereng garis yang menyambungkan titik A(5,-2) dan B(1,-6) dengan nisbah 1 : 3. Cari koordinat titik P.

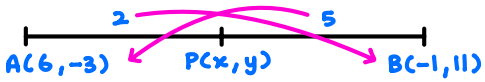


$P(x,y) = \left(\frac{3(5)+1(1)}{1+3} , \frac{3(-2)+1(-6)}{1+3} \right)$

$= \left(\frac{16}{4} , \frac{-12}{4} \right)$

$= (4,-3)$

4. Titik P membahagi tembereng garis yang menyambungkan titik A(6,-3) dan B(-1,11) dengan nisbah 2 : 5. Cari koordinat titik P.



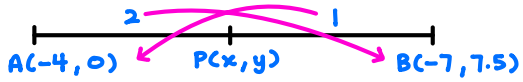
$P(x,y) = \left(\frac{5(6)+2(-1)}{2+5} , \frac{5(-3)+2(11)}{2+5} \right)$

$= \left(\frac{28}{7} , \frac{7}{7} \right)$

$= (4,1)$

5. Titik P membahagi tembereng garis yang menyambungkan titik A(-4,0) dan B(-7,7.5) dengan nisbah AP = 2PB. Cari koordinat titik P.

$\frac{AP}{PB} = \frac{2}{1}$



$P(x,y) = \left(\frac{1(-4)+2(-7)}{2+1} , \frac{1(0)+2(7.5)}{2+1} \right)$

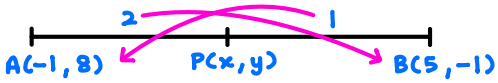
$= \left(\frac{-18}{3} , \frac{15}{3} \right)$

$= (-6,5)$

6. Titik P membahagi tembereng garis yang menyambungkan titik A(-1,8) dan B(5,-1) dengan nisbah 2AP = 4PB. Cari koordinat titik P.

$\frac{AP}{PB} = \frac{4}{2}$

$\frac{AP}{PB} = \frac{2}{1}$



$P(x,y) = \left(\frac{1(-1)+2(5)}{2+1} , \frac{1(8)+2(-1)}{2+1} \right)$

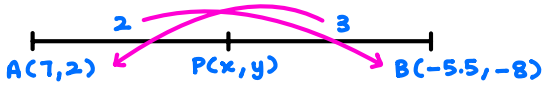
$= \left(\frac{9}{3} , \frac{6}{3} \right)$

$= (3,2)$

WORKSHEET 1: PEMBAHAGI TEMBERENG GARIS

7. Titik P membahagi tembereng garis yang menyambungkan titik A(7,2) dan B(-5.5,-8) dengan nisbah 3AP = 2PB. Cari koordinat titik P.

$\frac{AP}{PB} = \frac{2}{3}$



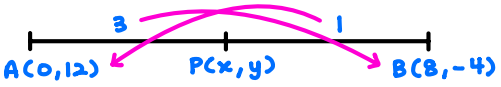
$P(x,y) = \left(\frac{3(7)+2(-5.5)}{2+3}, \frac{3(2)+2(-8)}{2+3}\right)$

$= \left(\frac{10}{5}, \frac{-10}{5}\right)$

$= (2,-2)$

8. Titik P membahagi tembereng garis yang menyambungkan titik A(0,12) dan B(8,-4) dengan nisbah AP = 3PB. Cari koordinat titik P.

$\frac{AP}{PB} = \frac{3}{1}$

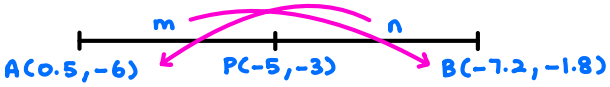


$P(x,y) = \left(\frac{1(0)+3(8)}{3+1}, \frac{1(12)+3(-4)}{3+1}\right)$

$= \left(\frac{24}{4}, \frac{0}{4}\right)$

$= (6,0)$

9. Cari nisbah AP : PB dengan keadaan titik P(-5,-3) membahagi tembereng garis yang menyambungkan titik A(0.5,-6) dan B(-7.2,-1.8).



$\left(\frac{n(0.5)+m(-7.2)}{m+n}, \frac{n(-6)+m(-1.8)}{m+n}\right) = (-5,-3)$

$\frac{-6n-1.8m}{m+n} = -3$

$-6n-1.8m = -3m-3n$

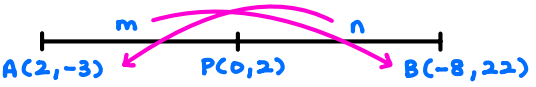
$1.2m = 3n$

$\frac{m}{n} = \frac{3}{1.2}$

$\frac{m}{n} = \frac{5}{2}$

m : n
5 : 2

10. Cari nisbah AP : PB dengan keadaan titik P(0,2) membahagi tembereng garis yang menyambungkan titik A(2,-3) dan B(-8,22).



$\left(\frac{n(2)+m(-8)}{m+n}, \frac{n(-3)+m(22)}{m+n}\right) = (0,2)$

$\frac{2n-8m}{m+n} = 0$

$2n-8m = 0$

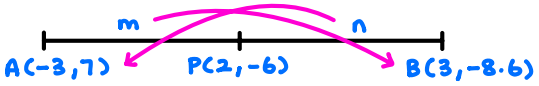
$-8m = -2n$

$\frac{m}{n} = \frac{2}{8}$

$\frac{m}{n} = \frac{1}{4}$

m : n
1 : 4

11. Cari nisbah AP : PB dengan keadaan titik P(2,-6) membahagi tembereng garis yang menyambungkan titik A(-3,7) dan B(3,-8.6).



$\left(\frac{n(-3)+m(3)}{m+n}, \frac{n(7)+m(-8.6)}{m+n}\right) = (2,-6)$

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

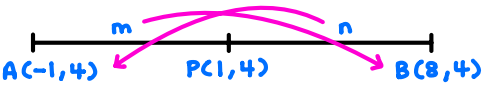
$-3n+3m = 2m+2n$

$m = 5n$

$\frac{m}{n} = \frac{5}{1}$

m : n
5 : 1

12. Cari nisbah AP : PB dengan keadaan titik P(1,4) membahagi tembereng garis yang menyambungkan titik A(-1,4) dan B(8,4).



$\left(\frac{n(-1)+m(8)}{m+n}, \frac{n(4)+m(4)}{m+n}\right) = (1,4)$

$\frac{-n+8m}{m+n} = 1$

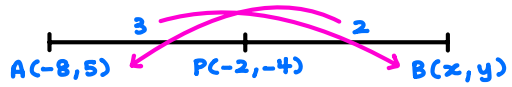
$-n+8m = m+n$

$7m = 2n$

$\frac{m}{n} = \frac{2}{7}$

m : n
2 : 7

13. Titik P(-2,-4) membahagi tembereng garis yang menyambungkan titik A(-8,5) dan B dengan nisbah 3 : 2. Cari koordinat titik B.



$\left(\frac{2(-8)+3(x)}{3+2}, \frac{2(5)+3(y)}{3+2}\right) = (-2,-4)$

$\frac{-16+3x}{5} = -2$

$-16+3x = -10$

$3x = 6$

$x = 2$

$\frac{10+3y}{5} = -4$

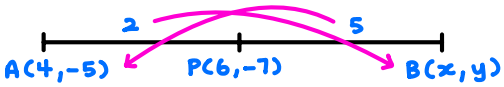
$10+3y = -20$

$3y = -30$

$y = -10$

B(2,-10)

14. Titik P(6,-7) membahagi tembereng garis yang menyambungkan titik A(4,-5) dan B dengan nisbah 2 : 5. Cari koordinat titik B.



$\left(\frac{5(4)+2(x)}{2+5}, \frac{5(-5)+2(y)}{2+5}\right) = (6,-7)$

$\frac{20+2x}{7} = 6$

$20+2x = 42$

$2x = 22$

$x = 11$

$\frac{-25+2y}{7} = -7$

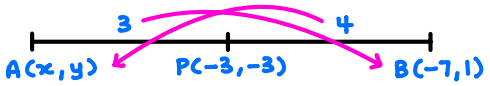
$-25+2y = -49$

$2y = -24$

$y = -12$

B(11,-12)

15. Titik P(-3,-3) membahagi tembereng garis yang menyambungkan titik A dan B(-7,1) dengan nisbah 3 : 4. Cari koordinat titik A.



$\left(\frac{4(x)+3(-7)}{3+4}, \frac{4(y)+3(1)}{3+4}\right) = (-3,-3)$

$\frac{4x-21}{7} = -3$ $\quad$ $\frac{4y+3}{7} = -3$

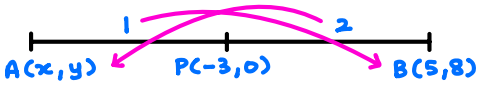
$4x-21 = -21$ $\quad$ $4y+3 = -21$

$4x = 0$ $\quad$ $4y = -24$

$x = 0$ $\quad$ $y = -6$

A(0,-6)

16. Titik P(-3,0) membahagi tembereng garis yang menyambungkan titik A dan B(5,8) dengan nisbah 1 : 2. Cari koordinat titik A.



$\left(\frac{2(x)+1(5)}{1+2}, \frac{2(y)+1(8)}{1+2}\right) = (-3,0)$

$\frac{2x+5}{3} = -3$ $\quad$ $\frac{2y+8}{3} = 0$

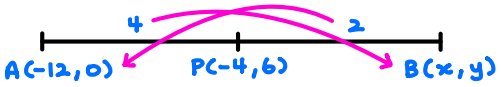
$2x+5 = -9$ $\quad$ $2y+8 = 0$

$2x = -14$ $\quad$ $2y = -8$

$x = -7$ $\quad$ $y = -4$

A(-7,-4)

17. Titik P(-4,6) membahagi tembereng garis yang menyambungkan titik A(-12,0) dan B dengan nisbah 4 : 2. Cari koordinat titik B.



$\left(\frac{2(-12)+4(x)}{4+2}, \frac{2(0)+4(y)}{4+2}\right) = (-4,6)$

$\frac{-24+4x}{6} = -4$ $\quad$ $\frac{0+4y}{6} = 6$

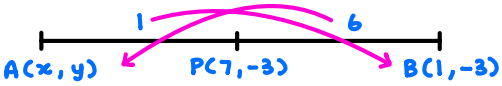
$-24+4x = -24$ $\quad$ $4y = 36$

$4x = 0$ $\quad$ $y = 9$

$x = 0$

B(0,9)

18. Titik P(7,-3) membahagi tembereng garis yang menyambungkan titik A dan B(1,-3) dengan nisbah 1 : 6. Cari koordinat titik A.



$\left(\frac{6(x)+1(1)}{1+6}, \frac{6(y)+1(-3)}{1+6}\right) = (7,-3)$

$\frac{6x+1}{7} = 7$ $\quad$ $\frac{6y-3}{7} = -3$

$6x+1 = 49$ $\quad$ $6y-3 = -21$

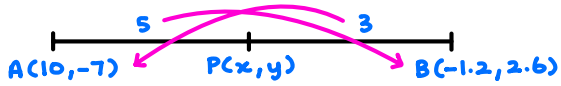
$6x = 48$ $\quad$ $6y = -18$

$x = 8$ $\quad$ $y = -3$

A(8,-3)

19. Titik P membahagi tembereng garis yang menyambungkan titik A(10,-7) dan B(-1.2,2.6) dengan nisbah 3AP = 5PB. Cari koordinat titik P.

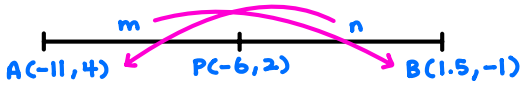
$\frac{AP}{PB} = \frac{5}{3}$



$P(x,y) = \left(\frac{3(10)+5(-1.2)}{5+3}, \frac{3(-7)+5(2.6)}{5+3}\right)$

$= (3,-1)$

20. Cari nisbah AP : PB dengan keadaan titik P(-6,2) membahagi tembereng garis yang menyambungkan titik A(-11,4) dan B(1.5,-1).



$\left(\frac{n(-11)+m(1.5)}{m+n}, \frac{n(4)+m(-1)}{m+n}\right) = (-6,2)$

$\frac{-11n+1.5m}{m+n} = -6$

$-11n+1.5m = -6m-6n$

$7.5m = 5n$

$\frac{m}{n} = \frac{5}{7.5}$

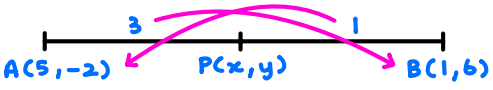
$\frac{m}{n} = \frac{2}{3}$

$m : n$

$2 : 3$

21. Titik P membahagi tembereng garis yang menyambungkan titik A(5,-2) dan B(1,6) dengan nisbah AP = 3PB. Cari koordinat titik P.

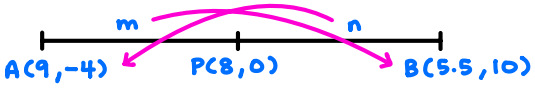
$\frac{AP}{PB} = \frac{3}{1}$



$P(x,y) = \left(\frac{1(5)+3(1)}{3+1}, \frac{1(-2)+3(6)}{3+1}\right)$

$= (2,4)$

22. Cari nisbah AP : PB dengan keadaan titik P(8,0) membahagi tembereng garis yang menyambungkan titik A(9,-4) dan B(5.5,10).



$\left(\frac{n(9)+m(5.5)}{m+n}, \frac{n(-4)+m(10)}{m+n}\right) = (8,0)$

$\frac{9n+5.5m}{m+n} = 8$

$9n+5.5m = 8m+8n$

$-2.5m = -n$

$\frac{m}{n} = \frac{1}{2.5}$

$\frac{m}{n} = \frac{2}{5}$

$m : n$

$2 : 5$

WORKSHEET 2: GARIS LURUS SELARI DAN SERENJANG

tentukan pasangan garis lurus berikut selari atau serenjang antara satu sama lain

1. $y + 3x = 5$

$3y + 9x - 7 = 0$

$y = -3x + 5$

$3y = -9x + 7$

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

∴ selari

2. $y - 2x + 5 = 0$

$6y + 3x = -5$

$y = 2x - 5$

$6y = -3x - 5$

$y = -\frac{1}{2}x - \frac{5}{6}$

$m_1 m_2 = -1$

∴ serenjang

3. $5y + 2x = 8$

$2y - 5x - 11 = 0$

$5y = -2x + 8$

$y = -\frac{2}{5}x + \frac{8}{5}$

$2y = 5x + 11$

$y = \frac{5}{2}x + \frac{11}{2}$

$m_1 m_2 = -1$

∴ serenjang

4. $-4x - 1 + 3y = 0$

$-7 + 12y - 16x = 0$

$3y = 4x + 1$

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

$12y = 16x + 7$

$y = \frac{16}{12}x + \frac{7}{12}$

$y = \frac{4}{3}x + \frac{7}{12}$

∴ selari

5. $-5 + 3x - 6y = 0$

$-8x + 7 - 4y = 0$

$-6y = -3x + 5$

$6y = 3x - 5$

$y = \frac{3}{6}x - \frac{5}{6}$

$y = \frac{1}{2}x - \frac{5}{6}$

$-4y = 8x - 7$

$4y = -8x + 7$

$y = -2x + \frac{7}{4}$

$m_1 m_2 = -1$

∴ serenjang

6. $-2x + 9 + 3y = 0$

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

$3y = 2x - 9$

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

$\frac{6x}{3} - \frac{6y}{2} = 6$

$2x - 3y = 6$

$-3y = -2x + 6$

$3y = 2x - 6$

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

∴ selari

7. $-15 + 6y = 4x$

$10 - 8y - 12x = 0$

$6y = 4x + 15$

$y = \frac{2}{3}x + \frac{5}{2}$

$-8y = 12x - 10$

$8y = -12x + 10$

$y = -\frac{3}{2}x + \frac{5}{4}$

$m_1 m_2 = -1$

∴ serenjang

8. $3y + 8 = -9x$

$\frac{x}{6} - \frac{y}{2} = 1$

$3y = -9x + 8$

$y = -3x + \frac{8}{3}$

$2x - 6y = 12$

$-6y = -2x + 12$

$6y = 2x - 12$

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

$m_1 m_2 = -1$

∴ serenjang

9. $4y - 11 + 2x = 0$

$3x + 6y = -8$

$4y = -2x + 11$

$y = -\frac{1}{2}x + \frac{11}{4}$

$6y = -3x - 8$

$y = -\frac{1}{2}x - \frac{4}{3}$

∴ selari

10. $4y - 5 = -3x$

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

$4y = -3x + 5$

$y = -\frac{3}{4}x + \frac{5}{4}$

$4x - 3y = 12$

$-3y = -4x + 12$

$3y = 4x - 12$

$y = \frac{4}{3}x - 4$

$m_1 m_2 = -1$

∴ serenjang

11. $13 - 5x = 2y$

$-8 + 6y + 15x = 0$

$2y = -5x + 13$

$y = -\frac{5}{2}x + \frac{13}{2}$

$6y = -15x + 8$

$y = -\frac{5}{2}x + \frac{4}{3}$

∴ selari

12. $-6x - 12 + 4y = 0$

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

$4y = 6x + 12$

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

$3x - 2y = 6$

$-2y = -3x + 6$

$2y = 3x - 6$

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

∴ selari

13. $10 + 5x - 4y = 0$

$-7 + 10y + 8x = 0$

$-4y = -5x - 10$

$4y = 5x + 10$

$y = \frac{5}{4}x + \frac{5}{2}$

$10y = -8x + 7$

$y = -\frac{4}{5}x + \frac{7}{10}$

$m_1 m_2 = -1$

∴ serenjang

14. $3 + 10x + 2y = 0$

$-21 + 15y - 3x = 0$

$2y = -10x - 3$

$y = -5x - \frac{3}{2}$

$15y = 3x + 21$

$y = \frac{1}{5}x + \frac{7}{5}$

$m_1 m_2 = -1$

∴ serenjang

15. $14 - 3x = 2y$

$20 + 6y - 4x = 0$

$2y = -3x + 14$

$y = -\frac{3}{2}x + 7$

$6y = 4x - 20$

$y = \frac{2}{3}x - \frac{10}{3}$

$m_1 m_2 = -1$

∴ serenjang

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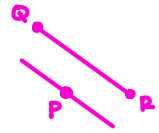
WORKSHEET 3: GARIS LURUS SELARI DAN SERENJANG

cari persamaan garis lurus yang melalui
i) titik P dan selari dengan QR ii) titik R dan berserenjang dengan QR

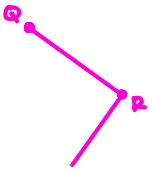
1. P(-8,-5) Q(-2,6) R(4,-3)

i) ① $m_{QR} = \frac{6-(-3)}{-2-4} = -\frac{9}{6} = -\frac{3}{2}$

②
$y - y_1 = m(x - x_1)$
$y-(-5) = -\frac{3}{2}(x-(-8))$
$y+5 = -\frac{3}{2}(x+8)$
$y+5 = -\frac{3}{2}x - 12$
$y = -\frac{3}{2}x - 17$



ii) ① $m_1 m_2 = -1$
$-\frac{3}{2} m_2 = -1$
$m_2 = \frac{2}{3}$

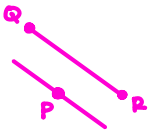


② $y - y_1 = m(x - x_1)$
$y-(-3) = \frac{2}{3}(x-4)$
$y+3 = \frac{2}{3}x - \frac{8}{3}$
$y = \frac{2}{3}x - \frac{17}{3}$

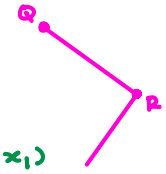
2. P(12,-7) Q(-8,5) R(4,-4)

i) ① $m_{QR} = \frac{5-(-4)}{-8-4} = -\frac{9}{12} = -\frac{3}{4}$

②
$y - y_1 = m(x - x_1)$
$y-(-7) = -\frac{3}{4}(x-12)$
$y+7 = -\frac{3}{4}x + 9$
$y = -\frac{3}{4}x + 2$



ii) ① $m_1 m_2 = -1$
$-\frac{3}{4} m_2 = -1$
$m_2 = \frac{4}{3}$

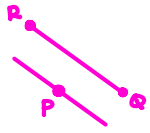


② $y - y_1 = m(x - x_1)$
$y-(-4) = \frac{4}{3}(x-4)$
$y+4 = \frac{4}{3}x - \frac{16}{3}$
$y = \frac{4}{3}x - \frac{28}{3}$

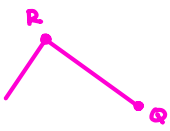
3. P(5,-3) Q(6,-1) R(-4,3)

i) ① $m_{QR} = \frac{-1-3}{6-(-4)} = -\frac{4}{10} = -\frac{2}{5}$

②
$y - y_1 = m(x - x_1)$
$y-(-3) = -\frac{2}{5}(x-5)$
$y+3 = -\frac{2}{5}x + 2$
$y = -\frac{2}{5}x - 1$



ii) ① $m_1 m_2 = -1$
$-\frac{2}{5} m_2 = -1$
$m_2 = \frac{5}{2}$



② $y - y_1 = m(x - x_1)$
$y-3 = \frac{5}{2}(x-(-4))$
$y-3 = \frac{5}{2}(x+4)$
$y-3 = \frac{5}{2}x + 10$
$y = \frac{5}{2}x + 13$

4. Diberi P(-7,4), Q(-4,-5), R(-2,5) dan S(h,8). Jika PQ berserenjang dengan RS. Cari nilai h.

① $m_{PQ} = \frac{4-(-5)}{-7-(-4)} = -3$

② $m_{RS} = \frac{1}{3}$

③ $\frac{5-8}{-2-h} = \frac{1}{3}$
$-9 = -2-h$
$-2-h = -9$
$-h = -7$
$h = 7$

5. Diberi P(3,5), Q(-5,-1), R(7,4) dan S(-2,h). Jika PQ berserenjang dengan RS. Cari nilai h.

① $m_{PQ} = \frac{5-(-1)}{3-(-5)} = \frac{6}{8} = \frac{3}{4}$

② $m_{RS} = -\frac{4}{3}$

③ $\frac{4-h}{7-(-2)} = -\frac{4}{3}$
$3(4-h) = -4(9)$
$12-3h = -36$
$-3h = -48$
$h = 16$

6. Diberi P(-2,6), Q(-7,4), R(3,-2) dan S(-5,h). Jika PQ berserenjang dengan RS. Cari nilai h.

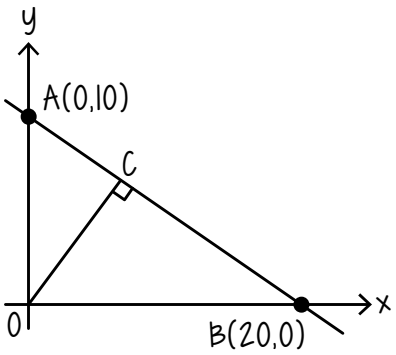
① $m_{PQ} = \frac{6-4}{-2-(-7)} = \frac{2}{5}$

② $m_{RS} = -\frac{5}{2}$

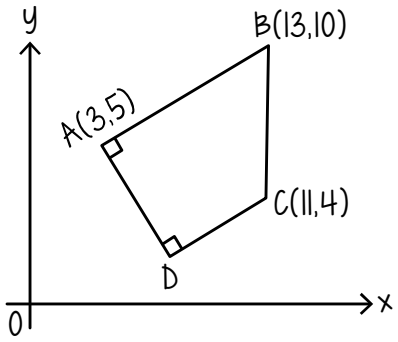
③ $\frac{-2-h}{3-(-5)} = -\frac{5}{2}$
$\frac{-2-h}{8} = -\frac{5}{2}$
$2(-2-h) = -5(8)$
$-4-2h = -40$
$-2h = -36$
$h = 18$

WORKSHEET 4: GARIS LURUS SELARI DAN SERENJANG

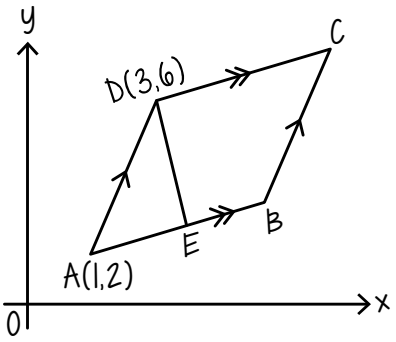
1. Cari:
a) persamaan garis lurus AB dan OC.
b) koordinat C dan jarak OC.



2. a) cari persamaan garis lurus AB
b) satu garis lurus melalui titik C dan berserenjang dengan garis AB. cari persamaan garis lurus tersebut.



3. DC: $3y - x = 12$.
DE ialah pembahagi dua sama serenjang bagi AB. Cari:
a) persamaan garis lurus AB dan DE.
b) koordinat B dan E.



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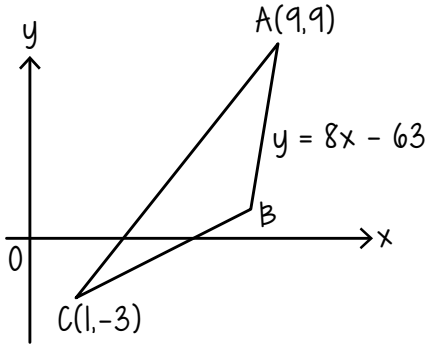
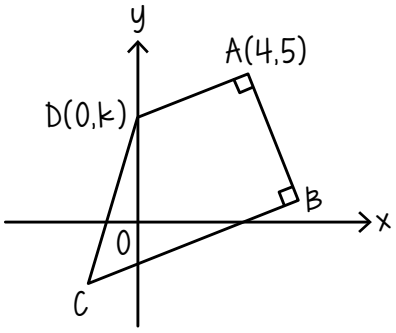
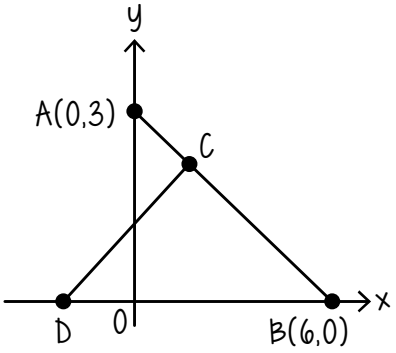
4. Titik B terletak di atas pembahagi dua sama serenjang AC. Cari:
a) persamaan pembahagi dua sama serenjang AC.
b) koordinat B.
c) Titik D terletak dengan keadaan ABCD ialah rombus. Cari koordinat D.
d) tunjukkan AC = 2BD.



5. c) koordinat B.



6. AC : CB = 1 : 5.
CD berserenjang dengan AB.
Cari:
a) persamaan garis lurus AB.
b) koordinat C.
c) koordinat D.



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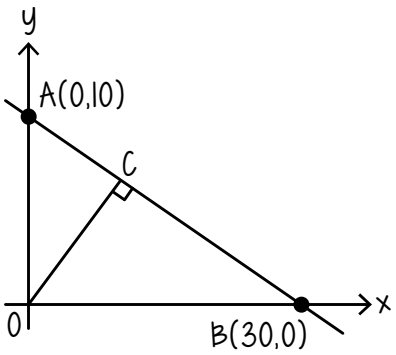
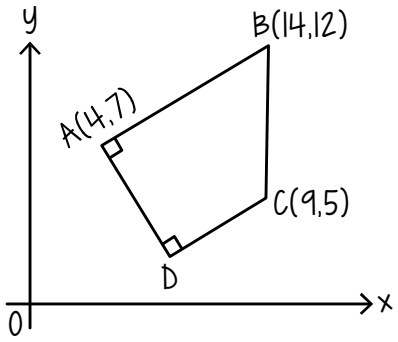
WORKSHEET 4: GARIS LURUS SELARI DAN SERENJANG

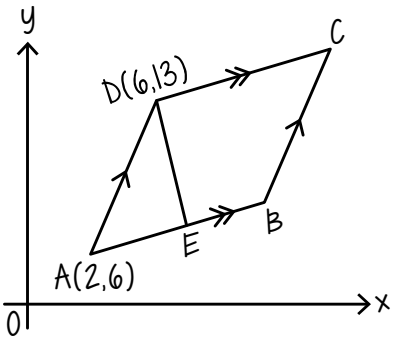
7. Cari:
a) persamaan garis lurus AB dan OC.
b) koordinat C dan jarak OC.



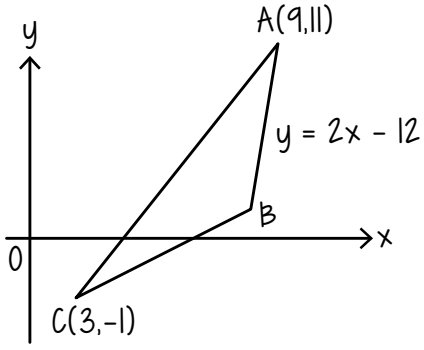
8. a) cari persamaan garis lurus AB
b) satu garis lurus melalui titik C dan berserenjang dengan garis AB. cari persamaan garis lurus tersebut.



9. DC: $4y - 2x = 10$.
DE ialah pembahagi dua sama serenjang bagi AB. Cari:
a) persamaan garis lurus AB dan DE.
b) koordinat B dan E.



10. Titik B terletak di atas pembahagi dua sama serenjang AC. Cari:
a) persamaan pembahagi dua sama serenjang AC.
b) koordinat B.
c) Titik D terletak dengan keadaan ABCD ialah rombus. Cari koordinat D.
d) tunjukkan $AC = 3BD$.



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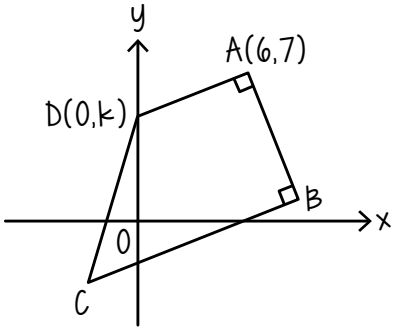
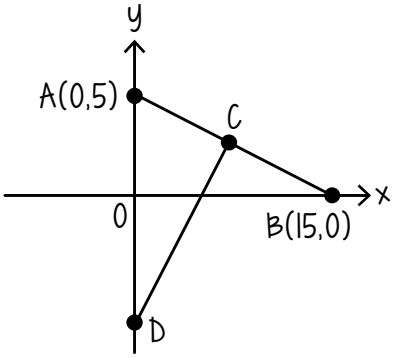
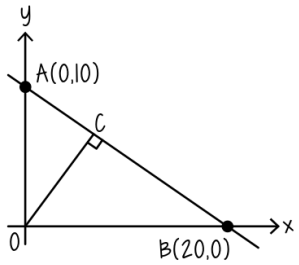


12. AC : CB = 2 : 3.
CD berserenjang dengan AB.
Cari:
a) persamaan garis lurus AB.
b) koordinat C.
c) koordinat D.



1. Cari:
a) persamaan garis lurus AB dan OC.
b) koordinat C dan jarak OC.



a) ① $m_{AB} = \frac{10-0}{0-20} = -\frac{1}{2}$

② $y - y_1 = m(x - x_1)$
$y - 10 = -\frac{1}{2}(x - 0)$
$y = -\frac{1}{2}x + 10$

③ $m_{OC} = 2$

④ $y - y_1 = m(x - x_1)$
$y - 0 = 2(x - 0)$
$y = 2x$

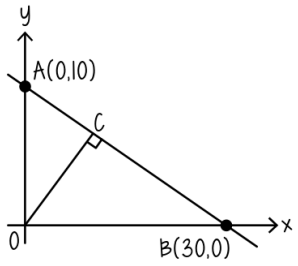
b) $y = -\frac{1}{2}x + 10$
$y = 2x$
$2x = -\frac{1}{2}x + 10$
$\frac{5}{2}x = 10$
$5x = 20$
$x = 4$

$y = 2x$
$y = 2(4)$
$y = 8$
$\therefore C = (4, 8)$

$OC = \sqrt{(0-4)^2 + (0-8)^2}$
$= \sqrt{80}$
$= 8.9443$

---

7. Cari:
a) persamaan garis lurus AB dan OC.
b) koordinat C dan jarak OC.



a) ① $m_{AB} = \frac{10-0}{0-30} = -\frac{1}{3}$

② $y - y_1 = m(x - x_1)$
$y - 10 = -\frac{1}{3}(x - 0)$
$y = -\frac{1}{3}x + 10$

③ $m_{OC} = 3$

④ $y - y_1 = m(x - x_1)$
$y - 0 = 3(x - 0)$
$y = 3x$

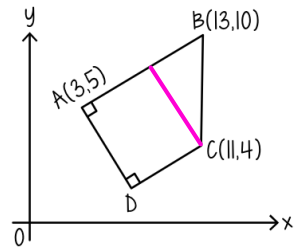
b) $y = -\frac{1}{3}x + 10$
$y = 3x$
$3x = -\frac{1}{3}x + 10$
$\frac{10}{3}x = 10$
$10x = 30$
$x = 3$

$y = 3x$
$y = 3(3)$
$y = 9$
$\therefore C(3, 9)$

$OC = \sqrt{(0-3)^2 + (0-9)^2}$
$= \sqrt{90}$
$= 9.4868$

---

2. a) cari persamaan garis lurus AB
b) satu garis lurus melalui titik C dan berserenjang dengan garis AB. cari persamaan garis lurus tersebut.



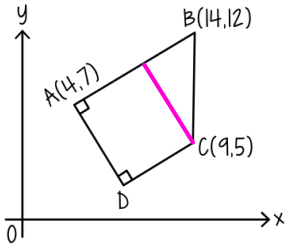
a) ① $m_{AB} = \frac{10-5}{13-3} = \frac{5}{10} = \frac{1}{2}$

② $y - y_1 = m(x - x_1)$
$y - 10 = \frac{1}{2}(x - 13)$
$y - 10 = \frac{1}{2}x - \frac{13}{2}$
$y = \frac{1}{2}x + \frac{7}{2}$

b) ① $m_1 m_2 = -1$
$\frac{1}{2} m_2 = -1$
$m_2 = -2$

② $y - y_1 = m(x - x_1)$
$y - 4 = -2(x - 11)$
$y = -2x + 22 + 4$
$y = -2x + 26$

8. a) cari persamaan garis lurus AB
b) satu garis lurus melalui titik C dan berserenjang dengan garis AB. cari persamaan garis lurus tersebut.



a) ① $m_{AB} = \frac{12-7}{14-4} = \frac{5}{10} = \frac{1}{2}$

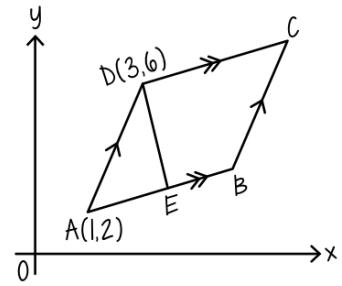
② $y - y_1 = m(x - x_1)$
$y - 12 = \frac{1}{2}(x - 14)$
$y - 12 = \frac{1}{2}x - 7$
$y = \frac{1}{2}x + 5$

b) ① $m_1 m_2 = -1$
$\frac{1}{2} m_2 = -1$
$m_2 = -2$

② $y - y_1 = m(x - x_1)$
$y - 5 = -2(x - 9)$
$y = -2x + 18 + 5$
$y = -2x + 23$

---

3. DC: $3y - x = 12$.
DE ialah pembahagi dua sama serenjang bagi AB. Cari:
a) persamaan garis lurus AB dan DE.
b) koordinat B dan E.



a) ① $3y - x = 12$
$3y = x + 12$
$y = \frac{1}{3}x + 4$
$m_{DC} = \frac{1}{3}$
$m_{AB} = \frac{1}{3}$

② $y - y_1 = m(x - x_1)$
$y - 2 = \frac{1}{3}(x - 1)$
$y - 2 = \frac{1}{3}x - \frac{1}{3}$
AB: $y = \frac{1}{3}x + \frac{5}{3}$

③ $m_{DE} = -3$
$y - y_1 = m(x - x_1)$
$y - 6 = -3(x - 3)$
$y - 6 = -3x + 9$
DE: $y = -3x + 15$

b) ① AB: $y = \frac{1}{3}x + \frac{5}{3}$
$3y = x + 5$
$3y - x = 5$

② DE: $y = -3x + 15$
$y + 3x = 15$

③ $3y - x = 5$
$y + 3x = 15$
$3y - x = 5$
$-) \quad 3y + 9x = 45$
$-10x = -40$
$x = 4$

$y + 3x = 15$
$y + 3(4) = 15$
$y + 12 = 15$
$y = 3$
$\therefore E(4,3)$

④ A(1,2)
B(x,y)
E(4,3)

$\left(\frac{1+x}{2}, \frac{2+y}{2}\right) = (4,3)$

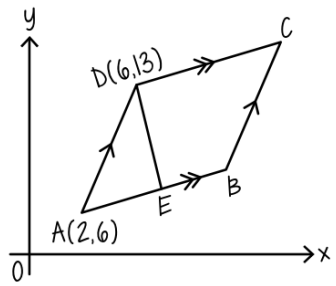
$\frac{1+x}{2} = 4$
$1 + x = 8$
$x = 7$

$\frac{2+y}{2} = 3$
$2 + y = 6$
$y = 4$

$\therefore B(7,4)$

---

9. DC: $4y - 2x = 10$.
DE ialah pembahagi dua sama serenjang bagi AB. Cari:
a) persamaan garis lurus AB dan DE.
b) koordinat B dan E.



a) ① $4y - 2x = 10$
$4y = 2x + 10$
$y = \frac{1}{2}x + \frac{5}{2}$
$m_{DC} = \frac{1}{2}$
$m_{AB} = \frac{1}{2}$

② $y - y_1 = m(x - x_1)$
$y - 6 = \frac{1}{2}(x - 2)$
$y - 6 = \frac{1}{2}x - 1$
AB: $y = \frac{1}{2}x + 5$

③ $m_{DE} = -2$
$y - y_1 = m(x - x_1)$
$y - 13 = -2(x - 6)$
$y - 13 = -2x + 12$
DE: $y = -2x + 25$

b) ① AB: $y = \frac{1}{2}x + 5$
$2y = x + 10$
$2y - x = 10$

② DE: $y = -2x + 25$
$y + 2x = 25$

③ $2y - x = 10$
$y + 2x = 25$
$4y - 2x = 20$
$+) \quad y + 2x = 25$
$5y = 45$
$y = 9$

$2y - x = 10$
$2(9) - x = 10$
$18 - x = 10$
$-x = -8$
$x = 8$
$\therefore E(8,9)$

④ A(2,6)
B(x,y)
E(8,9)

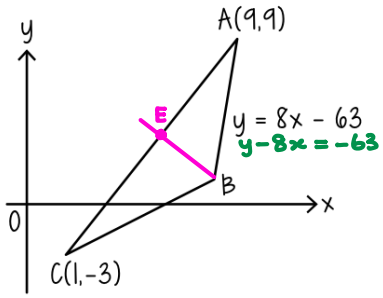
$\left(\frac{2+x}{2}, \frac{6+y}{2}\right) = (8,9)$

$\frac{2+x}{2} = 8$
$2 + x = 16$
$x = 14$

$\frac{6+y}{2} = 9$
$6 + y = 18$
$y = 12$

$\therefore B(14,12)$

4. Titik B terletak di atas pembahagi dua sama serenjang AC. Cari:
a) persamaan pembahagi dua sama serenjang AC.
b) koordinat B.
c) Titik D terletak dengan keadaan ABCD ialah rombus. Cari koordinat D.
d) tunjukkan AC = 2BD.



a) ① $m_{AC} = \frac{9-(-3)}{9-1} = \frac{12}{8} = \frac{3}{2}$

② $E = \left(\frac{9+1}{2}, \frac{9+(-3)}{2}\right) = (5,3)$

③ $m_{EB} = -\frac{2}{3}$

④ $y - y_1 = m(x - x_1)$
$y - 3 = -\frac{2}{3}(x-5)$
$y - 3 = -\frac{2}{3}x + \frac{10}{3}$
$y = -\frac{2}{3}x + \frac{19}{3}$
$3y = -2x + 19$
$3y + 2x = 19$

b) $3y + 2x = 19$
$y - 8x = -63$
$12y + 8x = 76$
$\oplus$ $y - 8x = -63$
$13y = 13$
$y = 1$

$y - 8x = -63$
$1 - 8x = -63$
$-8x = -64$
$x = 8$

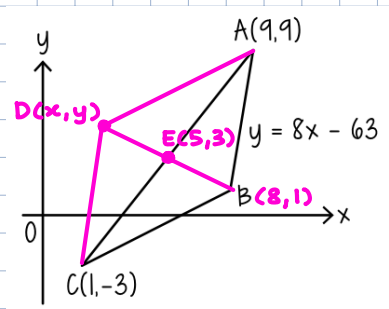
$\therefore B(8,1)$

c) $\left(\frac{x+8}{2}, \frac{y+1}{2}\right) = (5,3)$

$\frac{x+8}{2} = 5$
$x + 8 = 10$
$x = 2$

$\frac{y+1}{2} = 3$
$y + 1 = 6$
$y = 5$

$\therefore D(2,5)$



d) A(9,9) B(8,1)
C(1,-3) D(2,5)

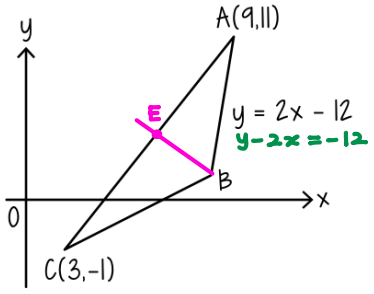
① $AC = \sqrt{(9-1)^2 + (9+3)^2}$
$= \sqrt{208}$

② $2BD = 2\sqrt{(8-2)^2 + (1-5)^2}$
$= 2\sqrt{52}$
$= \sqrt{208}$

$\therefore AC = 2BD$

---

10. Titik B terletak di atas pembahagi dua sama serenjang AC. Cari:
a) persamaan pembahagi dua sama serenjang AC.
b) koordinat B.
c) Titik D terletak dengan keadaan ABCD ialah rombus. Cari koordinat D.
d) tunjukkan AC = 3BD.



a) ① $m_{AC} = \frac{11-(-1)}{9-3} = \frac{12}{6} = 2$

② $E = \left(\frac{9+3}{2}, \frac{11+(-1)}{2}\right) = (6,5)$

③ $m_{EB} = -\frac{1}{2}$

④ $y - y_1 = m(x - x_1)$
$y - 5 = -\frac{1}{2}(x-6)$
$y - 5 = -\frac{1}{2}x + 3$
$y = -\frac{1}{2}x + 8$
$2y = -x + 16$
$2y + x = 16$

b) $2y + x = 16$
$y - 2x = -12$
$2y + x = 16$
$\ominus$ $2y - 4x = -24$
$5x = 40$
$x = 8$

$y - 2x = -12$
$y = 2x - 12$
$y = 2(8) - 12$
$y = 4$

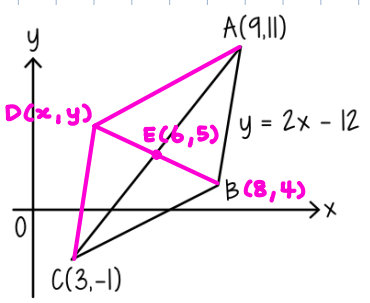
$\therefore B(8,4)$

c) $\left(\frac{x+8}{2}, \frac{y+4}{2}\right) = (6,5)$

$\frac{x+8}{2} = 6$
$x + 8 = 12$
$x = 4$

$\frac{y+4}{2} = 5$
$y + 4 = 10$
$y = 6$

$\therefore D(4,6)$



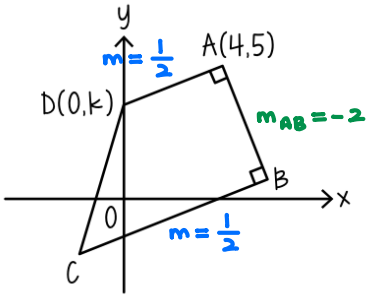
d) A(9,11) B(8,4)
C(3,-1) D(4,6)

① $AC = \sqrt{(9-3)^2 + (11+1)^2}$
$= \sqrt{180}$

② $3BD = 3\sqrt{(8-4)^2 + (4-6)^2}$
$= 3\sqrt{20}$
$= \sqrt{180}$

$\therefore AC = 3BD$

5. BC: $2y = x - 4$.
AD adalah selari dengan BC.
Cari:
a) nilai k.
b) persamaan garis lurus AB.
c) koordinat B.



BC: $2y = x - 4$

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

$m_{BC} = \frac{1}{2}$

a) $\frac{5-k}{4-0} = \frac{1}{2}$

$\frac{5-k}{4} = \frac{1}{2}$

$5 - k = 2$

$-k = -3$

$k = 3$

b) $y - y_1 = m(x - x_1)$

$y - 5 = -2(x - 4)$

$y - 5 = -2x + 8$

$y = -2x + 13$

c) ① BC: $2y = x - 4$

$2y - x = -4$

② AB: $y = -2x + 13$

$y + 2x = 13$

③ $2y - x = -4$

$y + 2x = 13$

$2y - x = -4$

$\ominus \quad 2y + 4x = 26$

$-5x = -30$

$x = 6$

④ $y = -2x + 13$

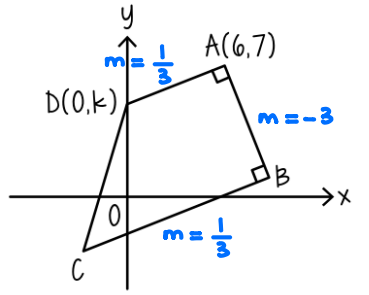
$= -2(6) + 13$

$= 1$

$\therefore B(6, 1)$

---

11. BC: $3y = x - 5$.
AD adalah selari dengan BC.
Cari:
a) nilai k.
b) persamaan garis lurus AB.
c) koordinat B.



BC: $3y = x - 5$

$y = \frac{1}{3}x - \frac{5}{3}$

$m_{BC} = \frac{1}{3}$

a) $\frac{7-k}{6-0} = \frac{1}{3}$

$\frac{7-k}{6} = \frac{1}{3}$

$7 - k = 2$

$-k = -5$

$k = 5$

b) $y - y_1 = m(x - x_1)$

$y - 7 = -3(x - 6)$

$y - 7 = -3x + 18$

$y = -3x + 25$

c) ① BC: $3y = x - 5$

$3y - x = -5$

② AB: $y = -3x + 25$

$y + 3x = 25$

③ $3y - x = -5$

$y + 3x = 25$

$9y - 3x = -15$

$\oplus \quad y + 3x = 25$

$10y = 10$

$y = 1$

④ $3y - x = -5$

$-x = -3y - 5$

$x = 3y + 5$

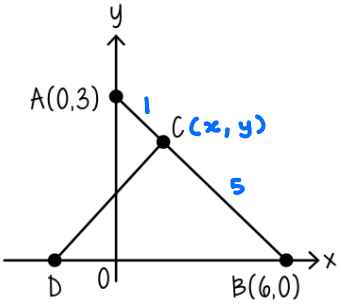
$x = 3(1) + 5$

$x = 8$

$\therefore B(8, 1)$

---

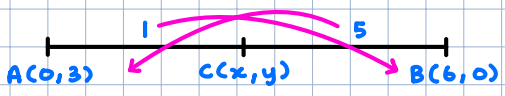
6. AC : CB = 1 : 5.
CD berserenjang dengan AB.
Cari:
a) persamaan garis lurus AB.
b) koordinat C.
c) koordinat D.



a) $m_{AB} = \frac{3-0}{0-6} = -\frac{1}{2}$

AB: $y = -\frac{1}{2}x + 3$

b)



$(x, y) = \left(\frac{5(0) + 1(6)}{1+5}, \frac{5(3) + 1(0)}{1+5}\right)$

$= (1, \frac{5}{2})$

c) ① $m_{AB} = -\frac{1}{2}$ $m_{CD} = 2$

$y - y_1 = m(x - x_1)$

$y - \frac{5}{2} = 2(x - 1)$

$y = 2x - 2 + \frac{5}{2}$

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

② $y = 2x + \frac{1}{2}$

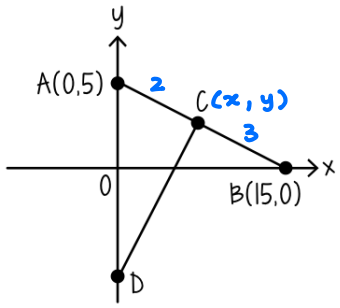
$0 = 2x + \frac{1}{2}$

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

$x = -\frac{1}{4}$

$D(-\frac{1}{4}, 0)$

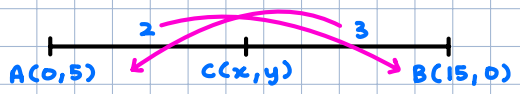
12. AC : CB = 2 : 3.
CD berserenjang dengan AB.
Cari:
a) persamaan garis lurus AB.
b) koordinat C.
c) koordinat D.



a) $m_{AB} = \frac{5-0}{0-15} = -\frac{1}{3}$

AB: $y = -\frac{1}{3}x + 5$

b)



$C(x,y) = \left(\frac{3(0)+2(15)}{2+3}, \frac{3(5)+2(0)}{2+3}\right)$

$= (6,3)$

c) $m_{AB} = -\frac{1}{3}$ $m_{CD} = 3$

$y - y_1 = m(x - x_1)$

$y - 3 = 3(x - 6)$

$y = 3x - 18 + 3$

$y = 3x - 15$

$D(0,-15)$

WORKSHEET 5: LUAS POLIGON

kira luas bagi setiap yang berikut

1. (-2,4) (-3,1) (2,-2)

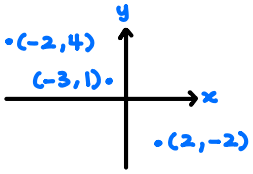
$\frac{1}{2}\left|\begin{matrix}-2 & -3 & 2 & -2\\ 4 & 1 & -2 & 4\end{matrix}\right|$

$= \frac{1}{2}\left|[(-2)(1)+(-3)(-2)+(2)(4)] - [(-3)(4)+(2)(1)+(-2)(-2)]\right|$

$= \frac{1}{2}\left|12-(-6)\right|$

$= \frac{1}{2}\left|18\right|$

$= 9$



2. (-2,-4) (4,2) (4,-6)

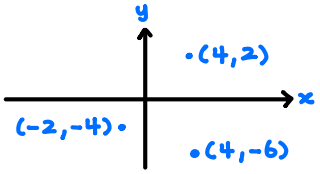
$\frac{1}{2}\left|\begin{matrix}-2 & 4 & 4 & -2\\ -4 & 2 & -6 & -4\end{matrix}\right|$

$= \frac{1}{2}\left|[(-2)(2)+(4)(-6)+(4)(-4)] - [(4)(-4)+(4)(2)+(-2)(-6)]\right|$

$= \frac{1}{2}\left|-44-4\right|$

$= \frac{1}{2}\left|-48\right|$

$= 24$



3. (-4,3) (-1,3) (1,-4) (-6,-2)

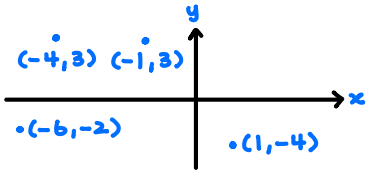
$\frac{1}{2}\left|\begin{matrix}-6 & -4 & -1 & 1 & -6\\ -2 & 3 & 3 & -4 & -2\end{matrix}\right|$

$= \frac{1}{2}\left|[(-6)(3)+(-4)(3)+(-1)(-4)+(1)(-2)] - [(-4)(-2)+(-1)(3)+(1)(3)+(-6)(-4)]\right|$

$= \frac{1}{2}\left|-28-32\right|$

$= \frac{1}{2}\left|-60\right|$

$= 30$



4. (-6,2) (0,-2) (-3,-5) (-8,-2)

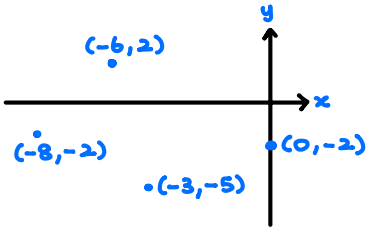
$\frac{1}{2}\left|\begin{matrix}-6 & -8 & -3 & 0 & -6\\ 2 & -2 & -5 & -2 & 2\end{matrix}\right|$

$= \frac{1}{2}\left|[(-6)(-2)+(-8)(-5)+(-3)(-2)+(0)(2)] - [(-8)(2)+(-3)(-2)+(0)(-5)+(-6)(-2)]\right|$

$= \frac{1}{2}\left|58-2\right|$

$= \frac{1}{2}\left|56\right|$

$= 28$



5. (-10,-4) (-2,-6) (2,-16) (-14,-10)

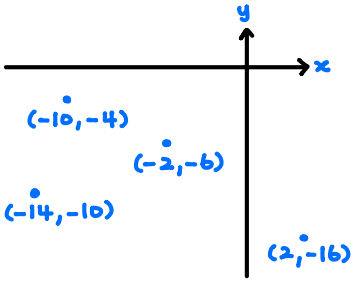
$\frac{1}{2}\left|\begin{matrix}-14 & -10 & -2 & 2 & -14\\ -10 & -4 & -6 & -16 & -10\end{matrix}\right|$

$= \frac{1}{2}\left|[(-14)(-4)+(-10)(-6)+(-2)(-16)+(2)(-10)] - [(-10)(-10)+(-2)(-4)+(2)(-6)+(-14)(-16)]\right|$

$= \frac{1}{2}\left|128-320\right|$

$= \frac{1}{2}\left|-192\right|$

$= 96$



6. (-12,-4) (-2,-8) (2,-2) (-10,4)

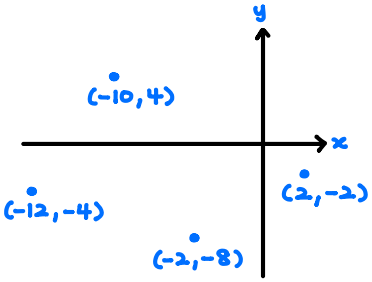
$\frac{1}{2}\left|\begin{matrix}-12 & -10 & 2 & -2 & -12\\ -4 & 4 & -2 & -8 & -4\end{matrix}\right|$

$= \frac{1}{2}\left|[(-12)(4)+(-10)(-2)+(2)(-8)+(-2)(-4)] - [(-10)(-4)+(2)(4)+(-2)(-2)+(-12)(-8)]\right|$

$= \frac{1}{2}\left|-36-148\right|$

$= \frac{1}{2}\left|-184\right|$

$= 92$



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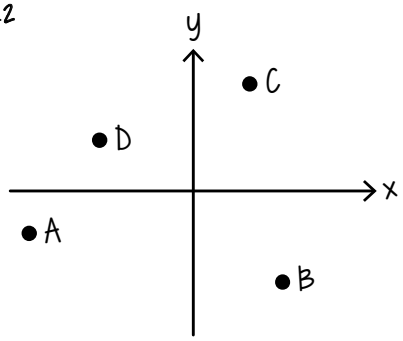
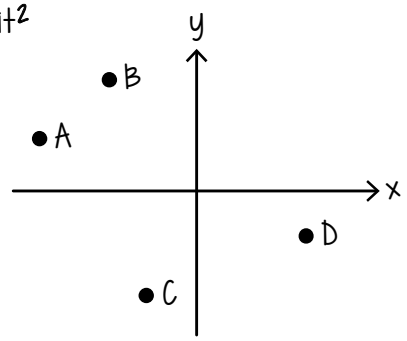
WORKSHEET 5: LUAS POLIGON

tentukan nilai h bagi setiap yang berikut

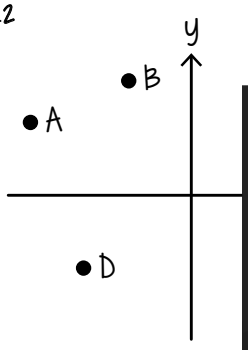
7. A(-6,-2) B(2,-4) C(1,h) D(-4,2)
luas ABCD = 36 unit^2



8. A(-7,1) B(-3,4) C(-1,-6) D(h,-1)
luas ABCD = 48 unit^2



9. A(-6,3) B(-2,h) C(4,-3) D(-3,-2)
luas ABCD = 33 unit^2



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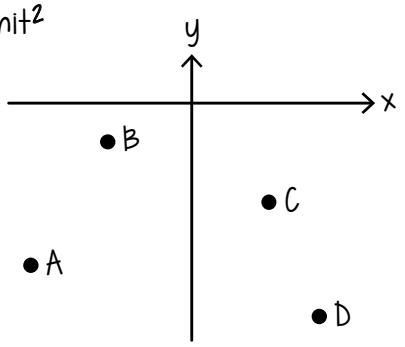
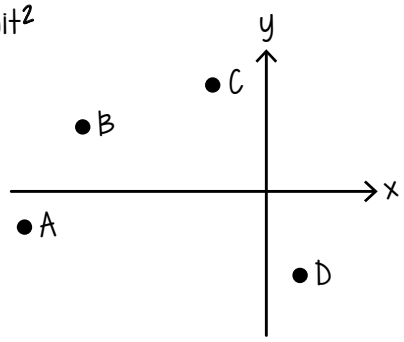
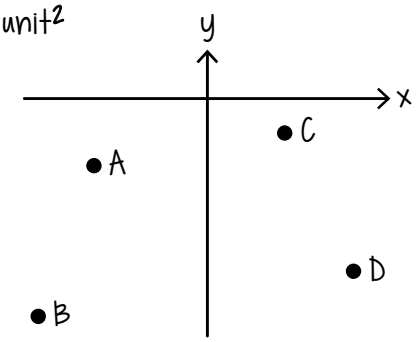
10. A(-5,-8) B(-2,-4) C(h,-6) D(3,-10)
luas ABCD = 26 unit^2



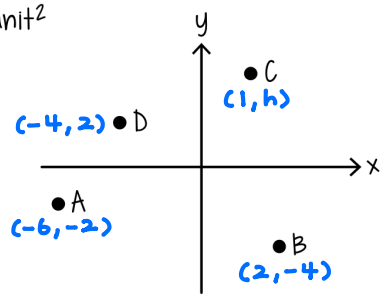
11. A(-8,-2) B(-6,h) C(-1,5) D(1,-3)
luas ABCD = 49 unit^2



12. A(-6,-4) B(-8,-12) C(4,-2) D(h,-10)
luas ABCD = 106 unit^2



7. A(−6,−2) B(2,−4) C(1,h) D(−4,2)
luas ABCD = 36 unit²



$$\frac{1}{2}\left|\begin{matrix}-6 & -4 & 1 & 2 & -6\\ -2 & 2 & h & -4 & -2\end{matrix}\right| = 36$$

$$\frac{1}{2}\left|[(-6)(2)+(-4)(h)+(1)(-4)+(2)(-2)] - [(-4)(-2)+(1)(2)+(2)(h)+(-6)(-4)]\right| = 36$$

$$\left|-12-4h-4-4-(8+2+2h+24)\right| = 72$$

$$\left|-20-4h-34-2h\right| = 72$$

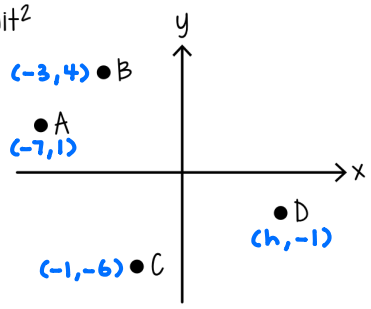
$$\left|-54-6h\right| = 72$$

$$-54-6h = \pm 72$$

$-54-6h = 72$
$-6h = 126$
$h = -21$

$-54-6h = -72$
$-6h = -18$
$h = 3$ ✓

8. A(−7,1) B(−3,4) C(−1,−6) D(h,−1)
luas ABCD = 48 unit²



$$\frac{1}{2}\left|\begin{matrix}-7 & -3 & h & -1 & -7\\ 1 & 4 & -1 & -6 & 1\end{matrix}\right| = 48$$

$$\frac{1}{2}\left|[(-7)(4)+(-3)(-1)+(h)(-6)+(-1)(1)] - [(-3)(1)+(h)(4)+(-1)(-1)+(-7)(-6)]\right| = 48$$

$$\left|-28+3-6h-1-(-3+4h+1+42)\right| = 96$$

$$\left|-26-6h-40-4h\right| = 96$$

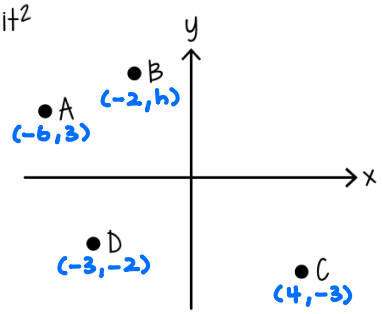
$$\left|-66-10h\right| = 96$$

$$-66-10h = \pm 96$$

$-66-10h = 96$
$-10h = 162$
$h = -16.2$

$-66-10h = -96$
$-10h = -30$
$h = 3$ ✓

9. A(−6,3) B(−2,h) C(4,−3) D(−3,−2)
luas ABCD = 33 unit²



$$\frac{1}{2}\left|\begin{matrix}-6 & -2 & 4 & -3 & -6\\ 3 & h & -3 & -2 & 3\end{matrix}\right| = 33$$

$$\frac{1}{2}\left|[(-6)(h)+(-2)(-3)+(4)(-2)+(-3)(3)] - [(-2)(3)+(4)(h)+(-3)(-3)+(-6)(-2)]\right| = 33$$

$$\left|-6h+6-8-9-(-6+4h+9+12)\right| = 66$$

$$\left|-6h-11-15-4h\right| = 66$$

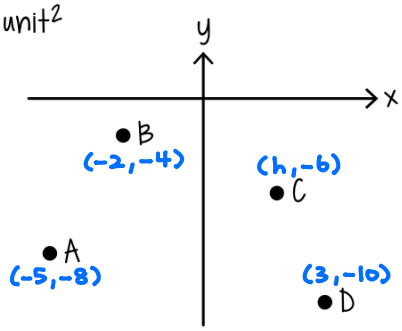
$$\left|-10h-26\right| = 66$$

$$-10h-26 = \pm 66$$

$-10h-26 = 66$
$-10h = 92$
$h = -9.2$

$-10h-26 = -66$
$-10h = -40$
$h = 4$ ✓

10. A(−5,−8) B(−2,−4) C(h,−6) D(3,−10)
luas ABCD = 26 unit²



$$\frac{1}{2}\left|\begin{matrix}-2 & h & 3 & -5 & -2\\ -4 & -6 & -10 & -8 & -4\end{matrix}\right| = 26$$

$$\frac{1}{2}\left|[(-2)(-6)+(h)(-10)+(3)(-8)+(-5)(-4)] - [(h)(-4)+(3)(-6)+(-5)(-10)+(-2)(-8)]\right| = 26$$

$$\left|12-10h-24+20-(-4h-18+50+16)\right| = 52$$

$$\left|-10h+8+4h-48\right| = 52$$

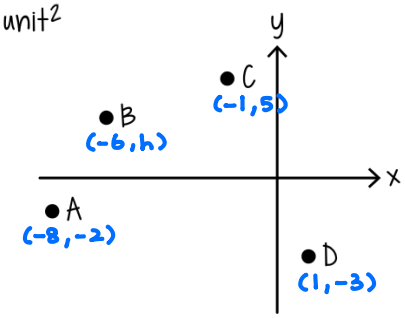
$$\left|-6h-40\right| = 52$$

$$-6h-40 = \pm 52$$

$-6h-40 = 52$
$-6h = 92$
$h = -\frac{46}{3}$

$-6h-40 = -52$
$-6h = -12$
$h = 2$ ✓

11. A(-8,-2) B(-6,h) C(-1,5) D(1,-3)
luas ABCD = 49 unit²



$\frac{1}{2}\left|\begin{matrix}1 & -8 & -6 & -1 & 1\\ -3 & -2 & h & 5 & -3\end{matrix}\right| = 49$

$\frac{1}{2}\left|[(1)(-2)+(-8)(h)+(-6)(5)+(-1)(-3)]\right.$
$\left.-[(-8)(-3)+(-6)(-2)+(-1)(h)+(1)(5)]\right| = 49$

$|-2-8h-30+3-(24+12-h+5)| = 98$

$|-8h-29+h-41| = 98$

$|-7h-70| = 98$

$-7h-70 = \pm 98$

$-7h-70 = 98$ | $-7h-70 = -98$
$-7h = 168$ | $-7h = -28$
$h = -24$ | $h = 4$ ✓

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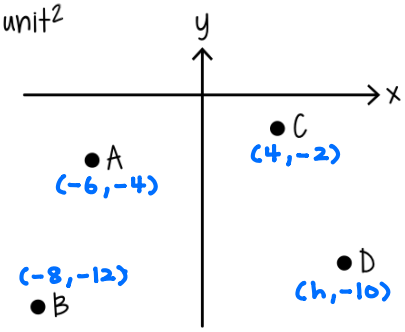
12. A(-6,-4) B(-8,-12) C(4,-2) D(h,-10)
luas ABCD = 106 unit²



$\frac{1}{2}\left|\begin{matrix}4 & h & -8 & -6 & 4\\ -2 & -10 & -12 & -4 & -2\end{matrix}\right| = 106$

$\frac{1}{2}\left|[(4)(-10)+(h)(-12)+(-8)(-4)+(-6)(-2)]\right.$
$\left.-[(h)(-2)+(-8)(-10)+(-6)(-12)+(4)(-4)]\right| = 106$

$|-40-12h+32+12-(-2h+80+72-16)| = 212$

$|4-12h+2h-136| = 212$

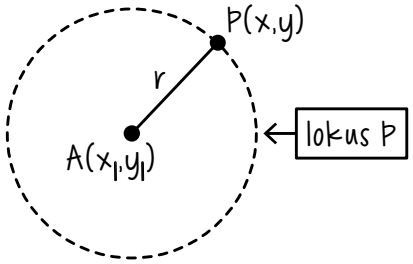
$|-10h-132| = 212$

$-10h-132 = \pm 212$

$-10h-132 = 212$ | $-10h-132 = -212$
$-10h = 344$ | $-10h = -80$
$h = -34.4$ | $h = 8$ ✓

WORKSHEET 6: PERSAMAAN LOKUS

KES 1



jarak P(x,y) dari suatu titik tetap A(x_1,y_1) ialah r

$$PA = r$$

$$\sqrt{(x - x_1)^2 + (y - y_1)^2} = r$$

$$(x - x_1)^2 + (y - y_1)^2 = r^2$$

KES 2

jarak P(x,y) dari titik A(x_1,y_1) dan B(x_2,y_2) adalah sama

$$PA = PB$$

$$\sqrt{(x - x_1)^2 + (y - y_1)^2} = \sqrt{(x - x_2)^2 + (y - y_2)^2}$$

$$(x - x_1)^2 + (y - y_1)^2 = (x - x_2)^2 + (y - y_2)^2$$

KES 3

nisbah jarak P(x,y) dari titik A(x_1,y_1) dan B(x_2,y_2) adalah m : n

$$PA : PB = m : n$$

$$\frac{PA}{PB} = \frac{m}{n}$$

$$\frac{\sqrt{(x - x_1)^2 + (y - y_1)^2}}{\sqrt{(x - x_2)^2 + (y - y_2)^2}} = \frac{m}{n}$$

$$\frac{(x - x_1)^2 + (y - y_1)^2}{(x - x_2)^2 + (y - y_2)^2} = \frac{m^2}{n^2}$$

1. persamaan lokus bagi titik bergerak P supaya jaraknya dari titik A(5,-4) ialah 8 unit.

2. persamaan lokus bagi titik bergerak P supaya jaraknya dari titik A(-3,-7) ialah 5 unit.

3. persamaan lokus bagi titik bergerak
supaya jaraknya dari titik A(-3,-5)
B(2,4) ialah sama.

n lokus bagi titik bergerak P
raknya dari titik A(5,-6) dan
ah sama.

download:
bit.ly/KapurPutehDriveTwo
bit.ly/KapurPutehCloud

1. persamaan lokus bagi titik bergerak P (x,y) supaya jaraknya dari titik A(5,-4) ialah 8 unit.

$$\sqrt{(x-5)^2+(y+4)^2} = 8$$
$$(x-5)^2+(y+4)^2 = 64$$
$$(x-5)(x-5)+(y+4)(y+4) = 64$$
$$x^2-10x+25+y^2+8y+16 = 64$$
$$x^2+y^2-10x+8y+41-64 = 0$$
$$x^2+y^2-10x+8y-23 = 0$$

2. persamaan lokus bagi titik bergerak P (x,y) supaya jaraknya dari titik A(-3,-7) ialah 5 unit.

$$\sqrt{(x+3)^2+(y+7)^2} = 5$$
$$(x+3)^2+(y+7)^2 = 25$$
$$(x+3)(x+3)+(y+7)(y+7)-25 = 0$$
$$x^2+6x+9+y^2+14y+49-25 = 0$$
$$x^2+y^2+6x+14y+33 = 0$$

3. persamaan lokus bagi titik bergerak P(x,y) supaya jaraknya dari titik A(-3,-5) dan B(2,4) ialah sama.

$$PA = PB$$
$$\sqrt{(x+3)^2+(y+5)^2} = \sqrt{(x-2)^2+(y-4)^2}$$
$$(x+3)^2+(y+5)^2 = (x-2)^2+(y-4)^2$$
$$(x+3)(x+3)+(y+5)(y+5) = (x-2)(x-2)+(y-4)(y-4)$$
$$x^2+6x+9+y^2+10y+25 = x^2-4x+4+y^2-8y+16$$
$$6x+10y+34 = -4x-8y+20$$
$$10x+18y+14 = 0$$
$$5x+9y+7 = 0$$

4. persamaan lokus bagi titik bergerak P(x,y) supaya jaraknya dari titik A(5,-6) dan B(7,2) ialah sama.

$$PA = PB$$
$$\sqrt{(x-5)^2+(y+6)^2} = \sqrt{(x-7)^2+(y-2)^2}$$
$$(x-5)^2+(y+6)^2 = (x-7)^2+(y-2)^2$$
$$(x-5)(x-5)+(y+6)(y+6) = (x-7)(x-7)+(y-2)(y-2)$$
$$x^2-10x+25+y^2+12y+36 = x^2-14x+49+y^2-4y+4$$
$$-10x+12y+61 = -14x-4y+53$$
$$4x+16y+8 = 0$$
$$x+4y+2 = 0$$

5. persamaan lokus bagi titik bergerak P supaya jaraknya dari titik A(-7,-1) dan B(5,6) dalam nisbah 2 : 1.

6. persamaan lokus bagi titik bergerak P supaya jaraknya dari titik A(-3,-7) dan B(-5,6) dalam nisbah 3 : 2.

7. persamaan lokus bagi titik bergerak P supaya jaraknya dari titik A(-8,3) ialah 9 unit.

8. persamaan lokus bagi titik bergerak P supaya jaraknya dari titik A(-6,4) dan B(3,10) ialah sama.

9. persamaan lokus bagi titik bergerak P supaya jaraknya dari titik A(-2,11) dan B(4,-3) dalam nisbah 1 : 4.

10. persamaan lokus bagi titik bergerak P supaya jaraknya dari titik A(4,-10) dan B(-5,7) dalam nisbah 2 : 5.

5. persamaan lokus bagi titik bergerak P(x,y) supaya jaraknya dari titik A$(-7,-1)$ dan B$(5,6)$ dalam nisbah $2:1$.

$$\frac{PA}{PB} = \frac{2}{1}$$
$$PA = 2PB$$
$$\sqrt{(x+7)^2+(y+1)^2} = 2\sqrt{(x-5)^2+(y-6)^2}$$
$$(x+7)^2+(y+1)^2 = 4[(x-5)^2+(y-6)^2]$$
$$(x+7)(x+7)+(y+1)(y+1) = 4[(x-5)(x-5)+(y-6)(y-6)]$$
$$x^2+14x+49+y^2+2y+1 = 4[x^2-10x+25+y^2-12y+36]$$
$$x^2+y^2+14x+2y+50 = 4[x^2+y^2-10x-12y+61]$$
$$x^2+y^2+14x+2y+50 = 4x^2+4y^2-40x-48y+244$$
$$-3x^2-3y^2+54x+50y-194 = 0$$
$$3x^2+3y^2-54x-50y+194 = 0$$

6. persamaan lokus bagi titik bergerak P(x,y) supaya jaraknya dari titik A$(-3,-7)$ dan B$(-5,6)$ dalam nisbah $3:2$.

$$\frac{PA}{PB} = \frac{3}{2}$$
$$2PA = 3PB$$
$$2\sqrt{(x+3)^2+(y+7)^2} = 3\sqrt{(x+5)^2+(y-6)^2}$$
$$4[(x+3)^2+(y+7)^2] = 9[(x+5)^2+(y-6)^2]$$
$$4[(x+3)(x+3)+(y+7)(y+7)] = 9[(x+5)(x+5)+(y-6)(y-6)]$$
$$4[x^2+6x+9+y^2+14y+49] = 9[x^2+10x+25+y^2-12y+36]$$
$$4[x^2+y^2+6x+14y+58] = 9[x^2+y^2+10x-12y+61]$$
$$4x^2+4y^2+24x+56y+232 = 9x^2+9y^2+90x-108y+549$$
$$-5x^2-5y^2-66x+164y-317 = 0$$
$$5x^2+5y^2+66x-164y+317 = 0$$

7. persamaan lokus bagi titik bergerak P(x,y) supaya jaraknya dari titik A$(-8,3)$ ialah 9 unit.

$$\sqrt{(x+8)^2+(y-3)^2} = 9$$
$$(x+8)^2+(y-3)^2 = 81$$
$$(x+8)(x+8)+(y-3)(y-3) = 81$$
$$x^2+16x+64+y^2-6y+9-81 = 0$$
$$x^2+y^2+16x-6y-8 = 0$$

8. persamaan lokus bagi titik bergerak P(x,y) supaya jaraknya dari titik A$(-6,4)$ dan B$(3,10)$ ialah sama.

$$\sqrt{(x+6)^2+(y-4)^2} = \sqrt{(x-3)^2+(y-10)^2}$$
$$(x+6)^2+(y-4)^2 = (x-3)^2+(y-10)^2$$
$$(x+6)(x+6)+(y-4)(y-4) = (x-3)(x-3)+(y-10)(y-10)$$
$$x^2+12x+36+y^2-8y+16 = x^2-6x+9+y^2-20y+100$$
$$12x-8y+52 = -6x-20y+109$$
$$18x+12y-57 = 0$$

9. persamaan lokus bagi titik bergerak P(x,y) supaya jaraknya dari titik A$(-2,11)$ dan B$(4,-3)$ dalam nisbah $1:4$.

$$\frac{PA}{PB} = \frac{1}{4}$$
$$4PA = PB$$
$$4\sqrt{(x+2)^2+(y-11)^2} = \sqrt{(x-4)^2+(y+3)^2}$$
$$16[(x+2)^2+(y-11)^2] = (x-4)^2+(y+3)^2$$
$$16[(x+2)(x+2)+(y-11)(y-11)] = (x-4)(x-4)+(y+3)(y+3)$$
$$16[x^2+4x+4+y^2-22y+121] = x^2-8x+16+y^2+6y+9$$
$$16[x^2+y^2+4x-22y+125] = x^2+y^2-8x+6y+25$$
$$16x^2+16y^2+64x-352y+2000 = x^2+y^2-8x+6y+25$$
$$15x^2+15y^2+72x-358y+1975 = 0$$

10. persamaan lokus bagi titik bergerak P(x, y) supaya jaraknya dari titik A(4,-10) dan B(-5,7) dalam nisbah 2 : 5.

$$\frac{PA}{PB} = \frac{2}{5}$$

$$5PA = 2PB$$

$$5\sqrt{(x-4)^2+(y+10)^2} = 2\sqrt{(x+5)^2+(y-7)^2}$$

$$25[(x-4)^2+(y+10)^2] = 4[(x+5)^2+(y-7)^2]$$

$$25[(x-4)(x-4)+(y+10)(y+10)] = 4[(x+5)(x+5)+(y-7)(y-7)]$$

$$25[x^2-8x+16+y^2+20y+100] = 4[x^2+10x+25+y^2-14y+49]$$

$$25[x^2+y^2-8x+20y+116] = 4[x^2+y^2+10x-14y+74]$$

$$25x^2+25y^2-200x+500y+2900 = 4x^2+4y^2+40x-56y+296$$

$$21x^2+21y^2-240x+556y+2604 = 0$$