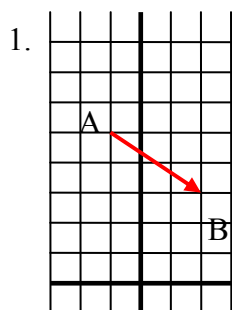


## TEMA 2 : Geometria analítica al pla

### Solucions



$$\vec{AB} = (3, 2)$$

$$|\vec{AB}| = \sqrt{13}$$

2. Extrem B(2, 7)

3. a) (-21, 6)  
b) (16, -10)

4.  $m = \frac{1}{2}$ ;  $n = \frac{3}{2}$

5.  $\vec{u} = 5\vec{x} + 3\vec{y}$

6. Vectors linealment independents

7.

Vectors linealment dependents si  $m = \frac{-6}{7}$

Els vector formen una base per  $m \neq \frac{-6}{7}$

8.  $k = 1$

9. a) -5  
b) 19

10.  $108^\circ 26' 5.82''$

11.

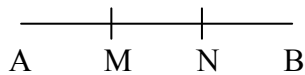
a)  $\vec{u} = \left( \frac{-5}{\sqrt{34}}, \frac{3}{\sqrt{34}} \right)$        $\vec{w} = \left( \frac{5}{\sqrt{34}}, \frac{-3}{\sqrt{34}} \right)$

b)  $\vec{u} = (3, 5)$        $\vec{w} = (-3, -5)$

c)  $\vec{u} = \left( \frac{3}{\sqrt{34}}, \frac{5}{\sqrt{34}} \right)$        $\vec{w} = \left( \frac{-3}{\sqrt{34}}, \frac{-5}{\sqrt{34}} \right)$

12.

Punt mig  $\left(4, \frac{1}{2}\right)$



$$M\left(\frac{11}{3}, \frac{-1}{3}\right); N\left(\frac{13}{3}, \frac{4}{3}\right)$$

13. Dos punts sempre estan alineats. (5,5) si està alineat

14. D (-4, -5)

$$15. r: \begin{cases} x = 3 - k \\ y = 2 + 2k \end{cases} \quad k \in \mathbb{R}$$

Tres punts exemple:  $k = 1 \rightarrow A(2,4)$   
 $k = -1 \rightarrow B(4,0)$   
 $k = 2 \rightarrow C(1,-2)$

16. r:  $y = -2x + 1$

17.

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

r:  $-5x + 6y - 10 = 0$  equació implícita o general

$$r: y = \frac{5}{6}x + \frac{5}{3} \text{ equació explícita}$$

18. A(0,-4); B(1,-1) (són dos exemples hi ha infinites solucions)

$$19. r: y = \frac{\sqrt{3}}{3}x + \frac{3 + 7\sqrt{3}}{3}$$

20. r:  $y = x + 1$

21.

Equació	Tipus	Punt de pas	Vector director	Pendent
$(x,y)=(1,-2)+k(0,2)$	Vectorial	(1,-2)	(0,2)	$\frac{2}{0} \rightarrow \infty$
$\frac{x-1}{5} = y-3$	Continua	(1,3)	(5,1)	$m = \frac{1}{5}$
$3x-y=0$	General Implícita	(0,0) Infinites solucions	(1,3)	$m = 3$
$x=2y$		(0,0) Infinites solucions	(2,1)	$m = \frac{1}{2}$
$\begin{cases} x = 3 - 5k \\ y = k \end{cases}$	Paramètrica	(3,0)	(-5,1)	$m = \frac{-1}{5}$
$-\frac{x}{2} = \frac{-y+3}{5}$	Continua	(0,3)	(-5,-2)	$m = \frac{1}{5}$

22. El punt no pertany a la recta

23.

$$s \parallel r \rightarrow s: \begin{cases} x = 3 - 2t \\ y = -2 + t \end{cases} \quad t \in \mathbb{R} \quad s \perp r \rightarrow s: \begin{cases} x = 3 + t \\ y = -2 + 2t \end{cases}$$

24.  $\vec{v}(1,4) \rightarrow r: -4x + y = 0$

25.  $r: 5x + 3y + 9 = 0$

26.

$$s \parallel r \rightarrow s: -x + 2y + 4 = 0$$

$$s \perp r \rightarrow s: 2x + y - 12 = 0$$

27.  $s \parallel r \rightarrow n = -6$  ;  $s \perp r \rightarrow n = \frac{3}{2}$

28.

- a) Secants P(10,17)
- b) Paral·leles
- c) Coincidents. Tots els punts

29.  $\alpha_1 = 81^\circ 52' 11,63''$   $\alpha_2 = 98^\circ 7' 48,37''$

30.  $d(A,B) = \sqrt{61}$

$$31. d(P,r) = \frac{4\sqrt{13}}{13}$$

$$32. d(r,s) = \frac{9\sqrt{10}}{10}$$

$$33. n = 9; n = -11$$

$$34. A(0,2); B\left(\frac{14}{5}, 2\right); C\left(\frac{14}{3}, \frac{20}{3}\right); \text{Àrea} = \frac{98}{15} \text{ unitats quadrades}$$

35.

$$a) r: 5x - 7y - 18 = 0$$

$$b) r: x + 3y - 8 = 0$$

$$c) r: 5x - 7y - 6 = 0$$

36.

$$a) \text{ Ortocentre } (14,36)$$

$$b) \text{ Circumcentre } \left(\frac{-15}{2}, \frac{-33}{2}\right)$$

$$37. \left(\frac{16}{5}, \frac{8}{5}\right)$$