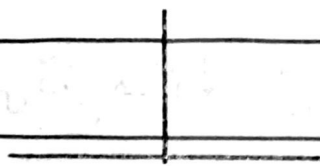


Find the line passing through the points (1, 2) and (3, 4) ①

$$B(1, 2) \rightarrow A(3, 4)$$

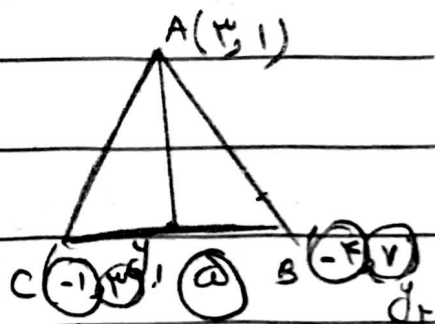


$$m = \frac{4-2}{3-1} = 1$$

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

Find the equation of the line passing through the points A(3, 1), B(-1, 2), and C(-1, 4) ②

BC is the line passing through A, B, and C. Find the equation of the line passing through A, B, and C.



$$\frac{1}{\sqrt{a^2 + b^2}} (ax + by + c) = 0$$

$$\frac{1}{\sqrt{(-1-3)^2 + (2-1)^2}} (x + 4y - 11) = 0$$

$$\frac{1}{\sqrt{16 + 1}} (x + 4y - 11) = 0$$

$$\frac{1}{\sqrt{17}} (x + 4y - 11) = 0$$

$$\sqrt{(-1-3)^2 + (2-1)^2} = \sqrt{16 + 1} = \sqrt{17}$$

$$\sqrt{9 + 16} = \sqrt{25} = 5$$

$$m = \frac{2-1}{-1-3} = -\frac{1}{4}$$

$$x - \frac{1}{4} = 0$$

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

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$$\frac{9}{16} - \frac{1}{16} = \frac{8}{16} = \frac{1}{2}$$

$$b = \frac{1}{2}$$

②

$$(m+1)x - (r-m)y + 1 = 0$$

$$(r-m-r)x + (d-m)y - r = 0$$

$$(d-m)y = (r-m-r)x + r$$

$$(r-m-r)y = (m+1)x + 1$$

↓

$$y = \left(\frac{r-m-r}{d-m} \right) x + \frac{r}{d-m}$$

$$y = \left(\frac{m+1}{r-m-r} \right) x + 1$$

$$\frac{m+1}{r-m-r} = \frac{m}{r-m-r}$$

$$r - r-m-r + r - r-m = r-m-r - \frac{1 \cdot m - r-m + r}{-1 \cdot m}$$

$$= d-m-r - m + 1$$

$$\Delta = b^2 - 4ac$$

$$\frac{(-1a) \pm \sqrt{a^2 - 4(1)(-1)}}{2 \cdot 1}$$