c) $5\cos A + 3 = 0$

$180^\circ < A < 360$

↳ in 3 and 4

These restrictions show us in which quadrant to work.

determine:

i) $\tan^2 A$

ii) $\dfrac{\sin A}{\cos A}$

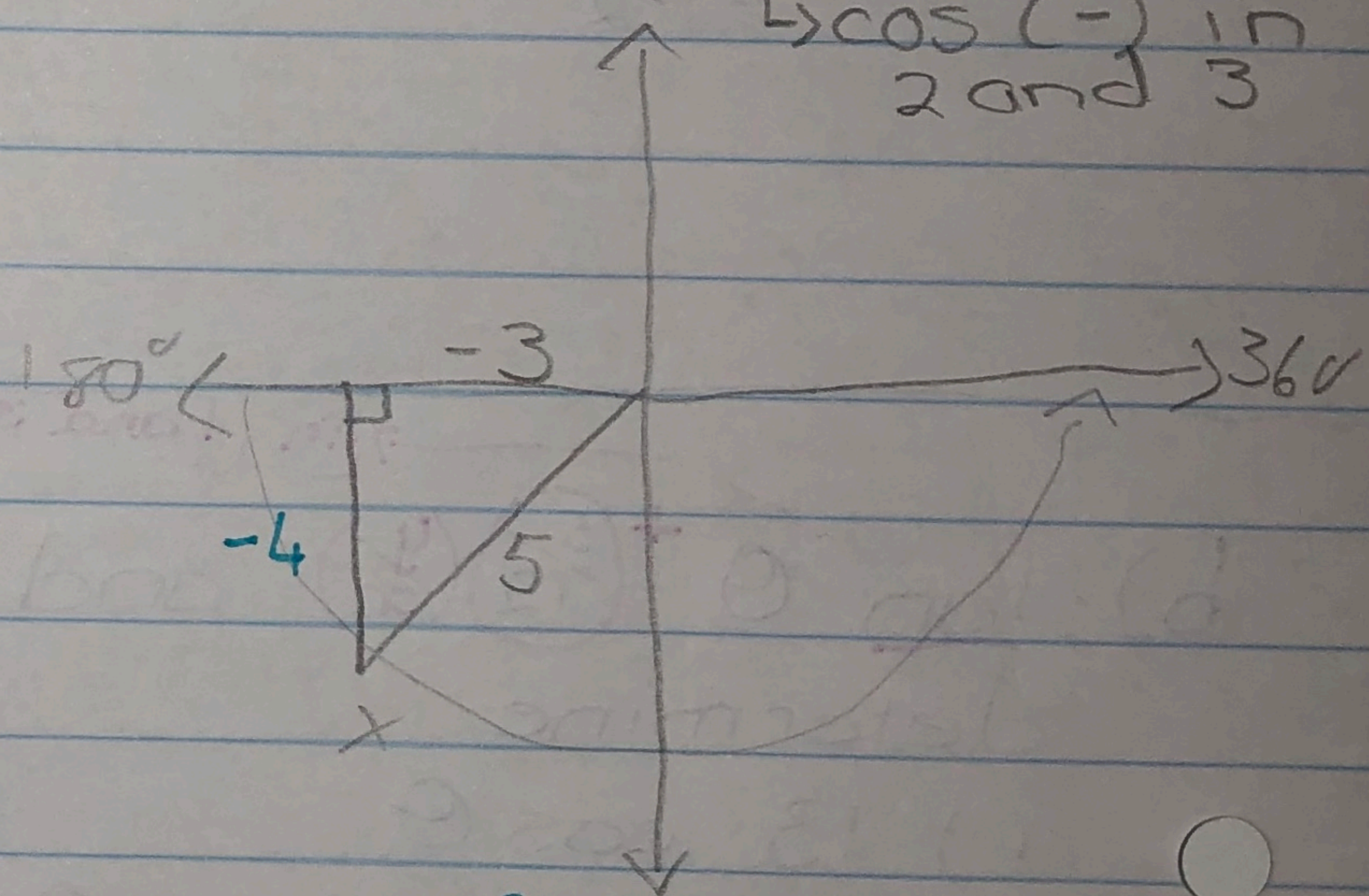
$5\cos A + 3 = 0$

↳ we need to get ratio alone!!

$\therefore 5\cos A = -3$

$\cos A = -\frac{3}{5} \left(\frac{x}{r}\right)$

↳ cos (−) in 2 and 3



$x^2 + y^2 = r^2$

$(-3)^2 + y^2 = (5)^2$

$y^2 = 25 - 9$

$\sqrt{y^2} = \sqrt{16}$

$y = -4$

↓

(−) because it is below x-axis

$\therefore$ i) $= \left(\frac{y}{x}\right)^2$

$= \left(\frac{-4}{-3}\right)^2$

$= \frac{16}{9}$

ii) $= \dfrac{\left(\frac{y}{r}\right)}{\left(\frac{x}{r}\right)}$

$= \left(-\frac{4}{5}\right) \div \left(-\frac{3}{5}\right)$

$= -\frac{4}{5} \times \frac{5}{-3}$

$= \frac{4}{3}$

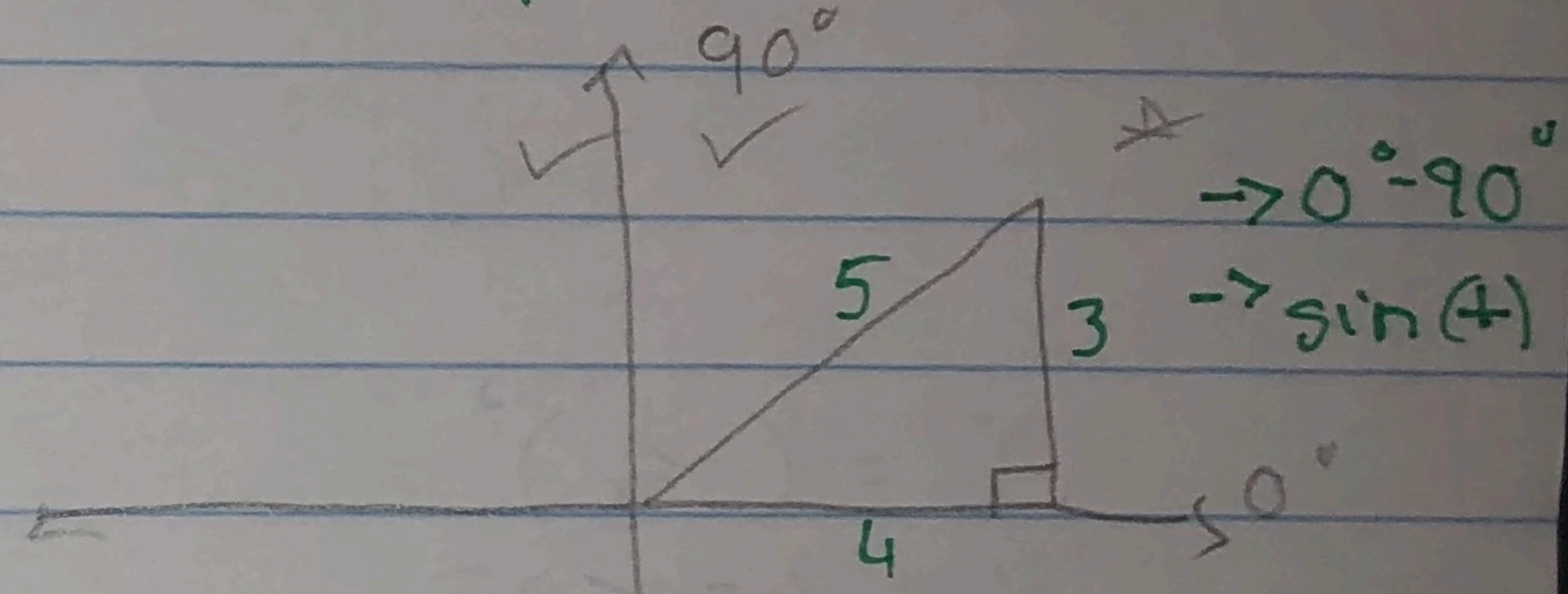
a) $\sin\theta = \frac{3}{5}$ ($\frac{y}{r}$ +) is it positive or negative? and $0^\circ \le \theta \le 90^\circ$ *

determine

i) $\cos^2\theta$

ii) $2\tan\theta$

* Check which quadrant to draw triangle in !?



$\therefore$ i) $= \left(\frac{4}{5}\right)^2$

$= \frac{16}{25}$

ii) $= 2\left(\frac{3}{4}\right)$

$= \frac{3}{2}$

$x^2 + y^2 = r^2$

$x^2 + (3)^2 = (5)^2$

$x^2 = \sqrt{16}$

$x = 4$

---

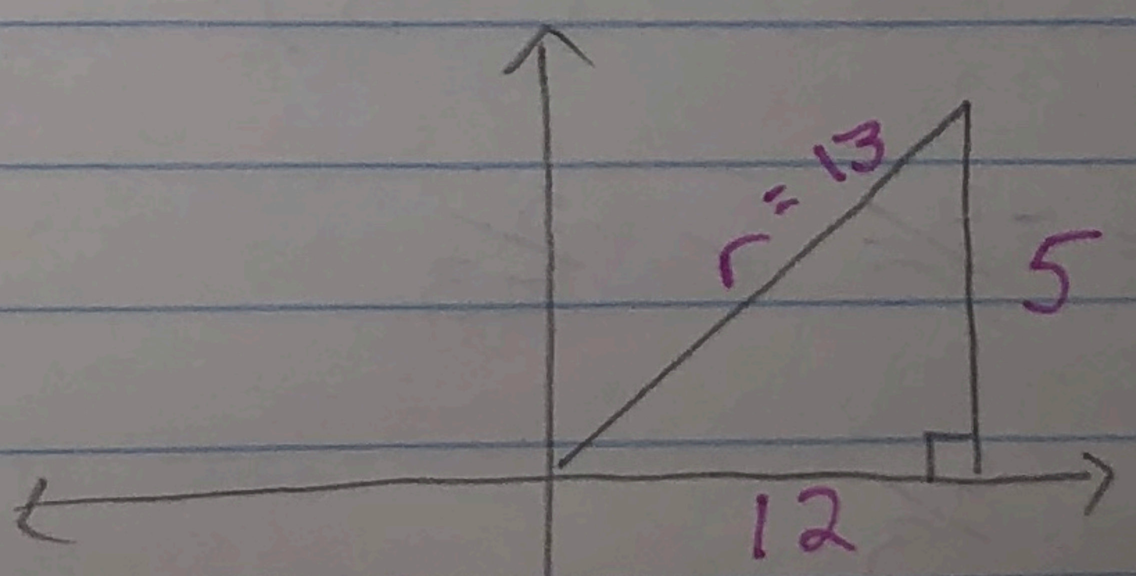
b) $\tan\theta = \frac{5}{12}$ $\left(\frac{y}{x}\right)$ + → {in 1 and 3} and $\sin\theta > 0$ → this means where sin is positive

{in 1 and 2}

determine

i) $13\cos\theta$

ii) $\cos^2\theta + \sin^2\theta$



i) $= 13\left(\frac{12}{13}\right)$

$= 12$

ii) $(\quad)^2 + (\quad)^2$

$= \left(\frac{12}{13}\right)^2 + \left(\frac{5}{13}\right)^2$

$= \frac{144}{169} + \frac{25}{169}$

$= 1$

$x^2 + y^2 = r^2$

$(12)^2 + (5)^2 = r^2$

$144 + 25 = r^2$

$\sqrt{169} = r^2$

$13 = r$

f) $4 \tan B - 3 = 0$ and $\boxed{\cos B < 0}$

determine:

i) $(\sin B + \cos B)^2$

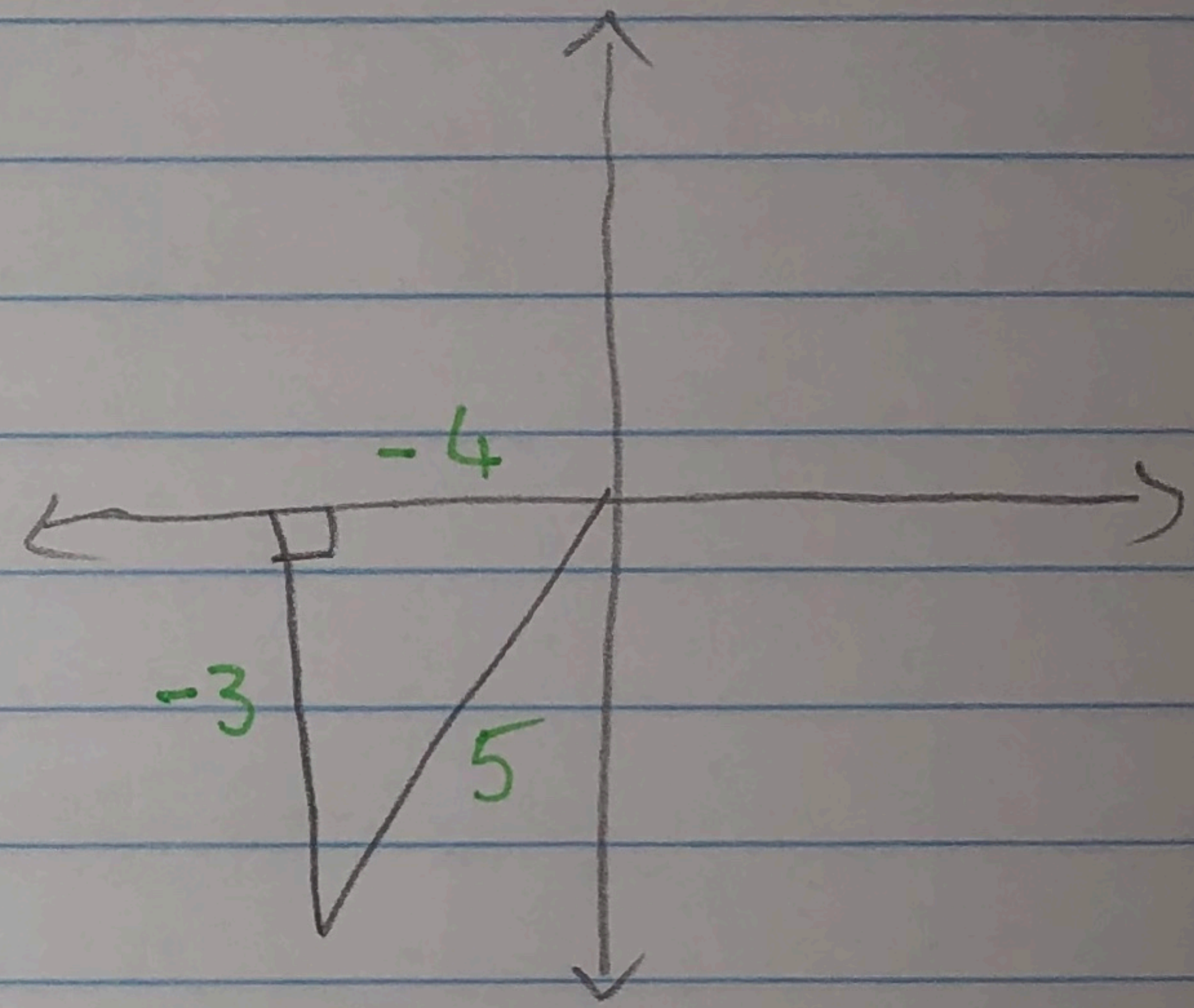
ii) $25(\sin B - \cos B)^2$

where cos is negative.... {in 2 and 3}

$\therefore 4 \tan B = 3$

$\tan B = \frac{3}{4} \left(\frac{y}{x}\right)$

tan is (+) {in 1 and 3}



$x^2 + y^2 = r^2$

$(4)^2 + (3)^2 = r^2$

$\sqrt{25} = \sqrt{r^2}$

$5 = r$

$\therefore$ i) $= \left[\left(\frac{-3}{5}\right) + \left(\frac{-4}{5}\right)\right]^2$

$= \left(\frac{-7}{5}\right)^2$

$= \frac{49}{25}$

ii) $= 25\left[\left(\frac{-3}{5}\right) - \left(\frac{-4}{5}\right)\right]^2$

$+$

$= 25\left[\frac{1}{5}\right]^2$

$= 25\left(\frac{1}{25}\right)$

$= 1$

d) $8 \tan \theta + 15 = 0$ and $\theta \in [90^\circ ; 270^\circ]$

{in 2 and 3}

determine

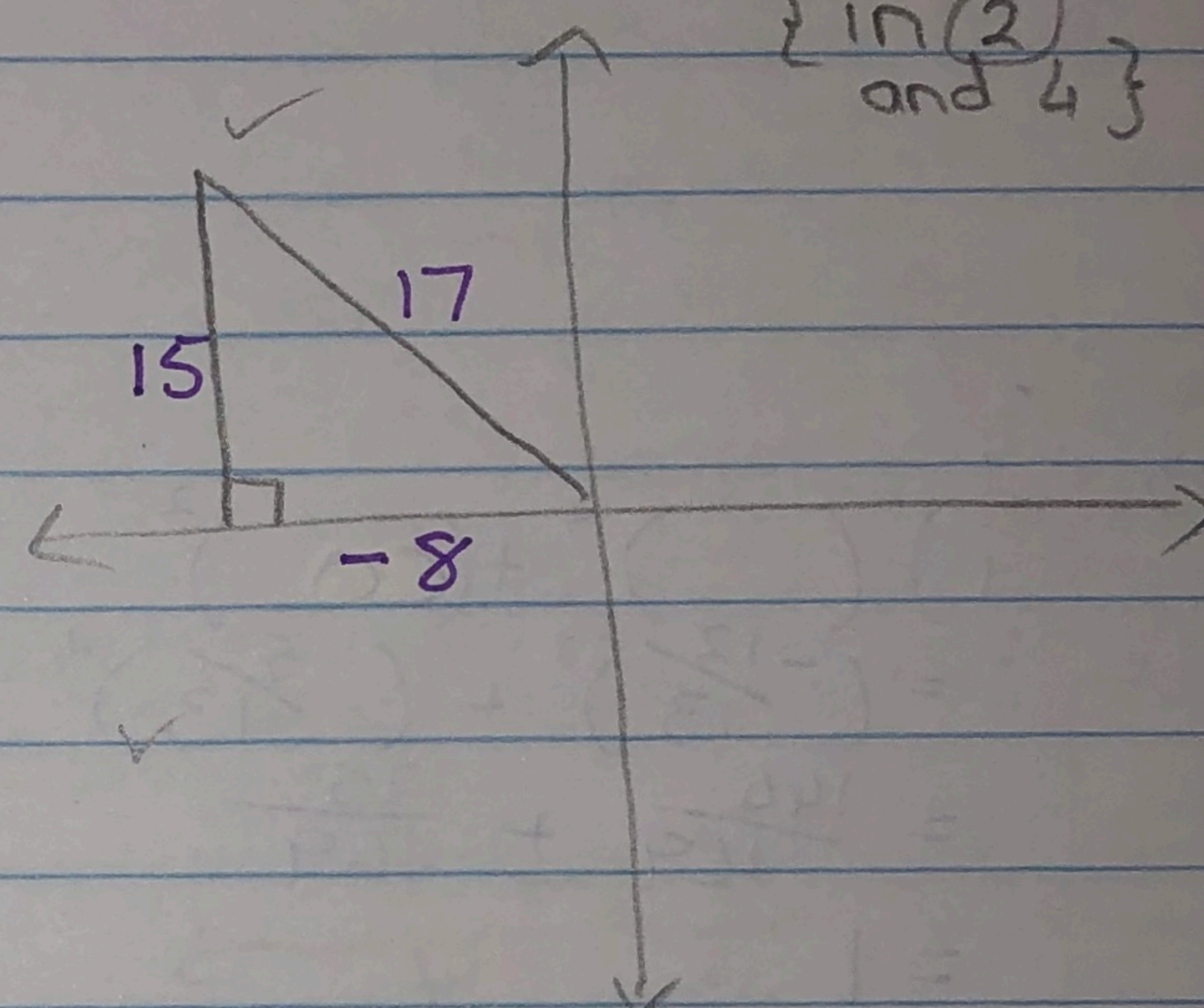
i) $\sin \theta + \cos \theta$

ii) $34 \sin \theta - 17 \cos \theta$

$8 \tan \theta = -15$

$\tan \theta = \frac{-15}{8} \left(\frac{y}{x}\right)$

{in 2 and 4}



$\therefore$ i) $= \frac{15}{17} + \left(\frac{-8}{17}\right)$

$= \frac{7}{17}$

ii) $= 34\left(\frac{15}{17}\right) - 17\left(\frac{-8}{17}\right)$

$= 30 + 8$

$= 38$

$x^2 + y^2 = r^2$

$(8)^2 + (15)^2 = r^2$

$64 + 225 = r^2$

$\sqrt{289} = \sqrt{r^2}$

$17 = r$

e) $13\cos\theta - 5 = 0$ and $180° < \theta < 360°$

{in 3 and 4}

determine:

i) $\sin^2\theta + \cos^2\theta$

ii) $25\tan^2\theta$

*Check restrictions then do Cartesian Plane.

1st get ratio.

$\therefore 13\cos\theta = 5$

$\cos\theta = \frac{5}{13}\left(\frac{x}{r}\right)$

(+)

$\therefore$ {in 1 and 4}

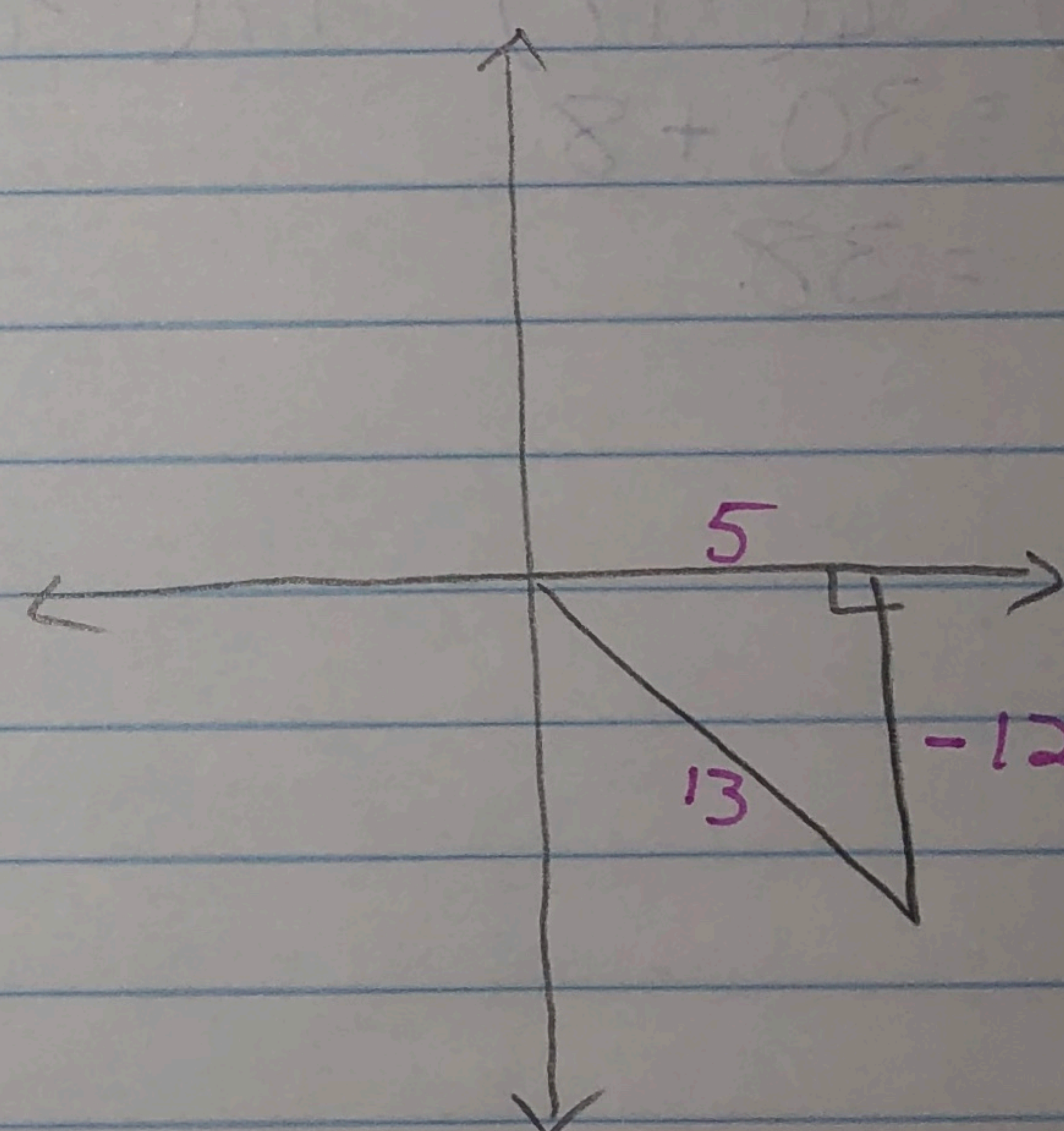
$\therefore$

i) $(\quad)^2 + (\quad)^2$

$= \left(\frac{-12}{13}\right)^2 + \left(\frac{5}{13}\right)^2$

$= \frac{144}{169} + \frac{25}{169}$

$= 1$



ii) $= 25(\quad)^2$

$= 25\left(\frac{-12}{5}\right)^2$

$= \frac{25}{1}\left(\frac{144}{25}\right)$

$= 144.$

$x^2 + y^2 = r^2$

$(5)^2 + y^2 = (13)^2$

$y^2 = 169 - 25$

$\sqrt{y^2} = \pm\sqrt{144}$

$y = -12$