GRAAD 11_Trigonometrie
11.9 Berekenings in vier kwadrante

Alle berekenings moet 'n diagram ook hê.

1. As $-5\sin\theta = 3$ en $\theta \in (270°;360°)$, bereken $\cos\theta$.

2. As $\tan\alpha - 4 = 0$ en $0° \leq \alpha \leq 90°$, bereken $\cos\alpha$.

3. As $5\tan\beta = 12$ en $\beta \in (180°;270°)$, bereken $\sin\beta$.

4. As $5\cos\theta = 4$ en $\theta \in (0°;90°)$, bereken $\tan\theta$.

5. As $-13\cos\alpha = 5$ en $\alpha \in [180°;270°]$, bereken $\sin\alpha$.

MEMO

Berekeninge in vier kwadrante [7.6.5.1]

1. $-5\sin\theta = 3$

$$\sin\theta = \frac{-3}{5} = \frac{y}{r}$$

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

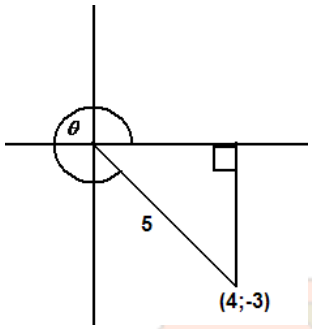
$$5^2 = x^2 + (-3)^2$$

$$25 = x^2 + 9$$

$$16 = x^2$$

$$\therefore x = \pm 4$$

$$4^{de} : x = 4$$



$$\therefore \cos\theta = \frac{x}{r} = \frac{4}{5}$$

2. $\tan\alpha - 4 = 0$

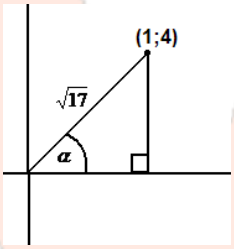
$$\tan\alpha = 4 = \frac{4}{1} = \frac{y}{x}$$

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

$$r^2 = 1^2 + 4^2$$

$$r^2 = 17$$

$$\therefore r = \sqrt{17}$$



$$\therefore \cos\alpha = \frac{x}{r} = \frac{1}{\sqrt{17}}$$

3. $5\tan\beta = 12$

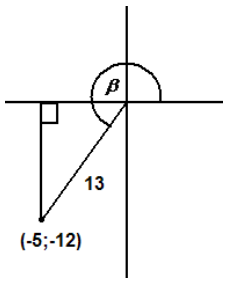
$$\tan\beta = \frac{-12}{-5} = \frac{y}{x}$$

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

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

$r^2 = 169$

$\therefore r = 13$



$\therefore \sin\beta = \frac{y}{r} = \frac{-12}{13}$

4. $5\cos\theta = 4$

$\cos\theta = \frac{4}{5} = \frac{x}{r}$

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

$5^2 = 4^2 + y^2$

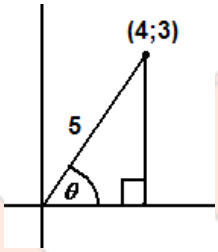
$25 = 16 + y^2$

$9 = y^2$

$\therefore y = \pm 3$

$1^{ste} : y = 3$

$\therefore \tan\theta = \frac{y}{x} = \frac{3}{4}$



5. $-13\cos\alpha = 5$

$\cos\alpha = \frac{-5}{13} = \frac{x}{r}$

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

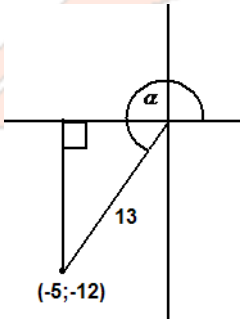
$13^2 = (-5)^2 + y^2$

$169 = 25 + y^2$

$144 = y^2$

$\therefore y = \pm 12$

$3^{de} : y = -12$



$\therefore \sin\alpha = \frac{y}{r} = \frac{-12}{13}$