20/9/2018

142 $$\frac{(-\sin 5\pi + \cos \pi)\sin \frac{11}{2}\pi + 2\sin \frac{3}{2}\pi \cdot \cos 2\pi}{3\left(\cos \frac{5}{2}\pi + 2\sin \frac{9}{2}\pi\right)} =$$

$$= \frac{(-0 + (-1))(-1) + 2(-1)\cdot 1}{3(0 + 2 \cdot 1)} =$$

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

212 $\cos\alpha = \frac{3}{4}$ e $\frac{3}{2}\pi < \alpha < 2\pi$. $\tan\alpha = ?$

$$\sin\alpha = -\sqrt{1-\cos^2\alpha} = -\sqrt{1-\frac{9}{16}} = -\sqrt{\frac{7}{16}} =$$

$$= -\frac{\sqrt{7}}{4}$$

$$\tan\alpha = \frac{\sin\alpha}{\cos\alpha} = \frac{-\frac{\sqrt{7}}{4}}{\frac{3}{4}} = -\frac{\sqrt{7}}{3}$$

semplificare

236 $(\sin\alpha + \cos\alpha)^2 - 2\tan\alpha\cos^2\alpha + 2\sin^2\alpha - 1 =$

$$= \underbrace{\sin^2\alpha + \cos^2\alpha}_{1} + 2\sin\alpha\cos\alpha - 2\,\frac{\sin\alpha}{\cancel{\cos\alpha}}\cdot\cancel{\cos^2}\alpha + 2\sin^2\alpha - 1 =$$

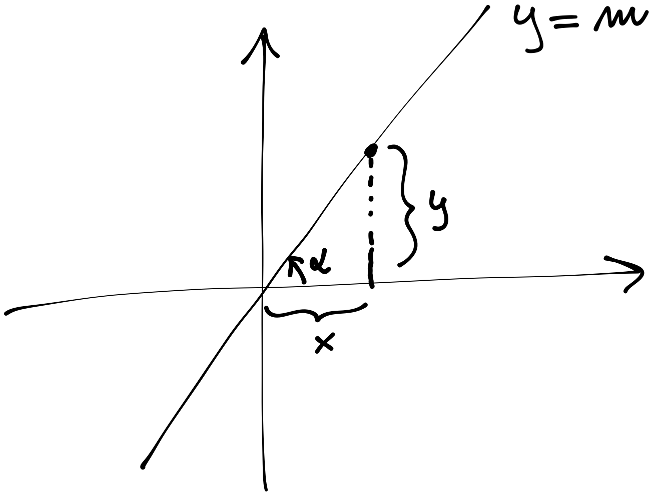
$$= \cancel{1} + 2\,\cancel{\sin\alpha\cos\alpha} - 2\,\cancel{\sin\alpha\cos\alpha} + 2\sin^2\alpha - \cancel{1} = \boxed{2\sin^2\alpha}$$

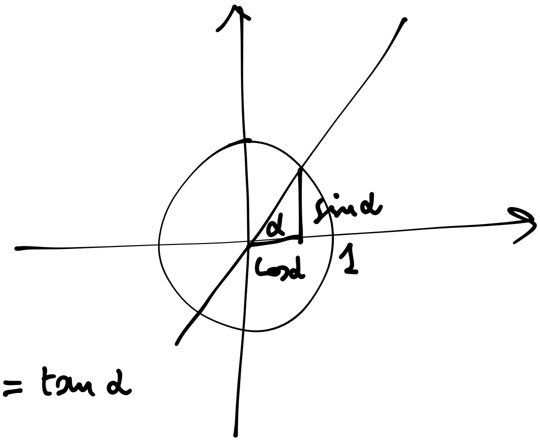
$$\cos\alpha^2 = \cos(\alpha^2) \qquad \neq \qquad \cos^2\alpha = (\cos\alpha)^2$$

$f(x) = x^2 \qquad g(x) = \cos x$

$f(g(x)) = f(\cos x) = \cos^2 x \qquad g(f(x)) = g(x^2) = \cos x^2$

$$y = mx \rightsquigarrow m = \frac{y}{x}$$

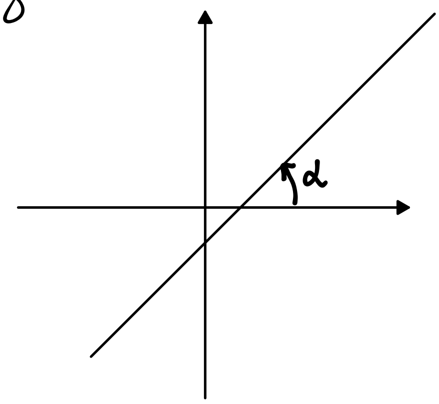




$$\frac{y}{x} = m = \frac{\sin\alpha}{\cos\alpha} = \tan\alpha$$

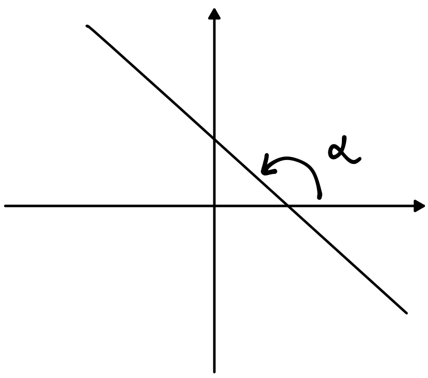
In generale

$$y = mx + q$$

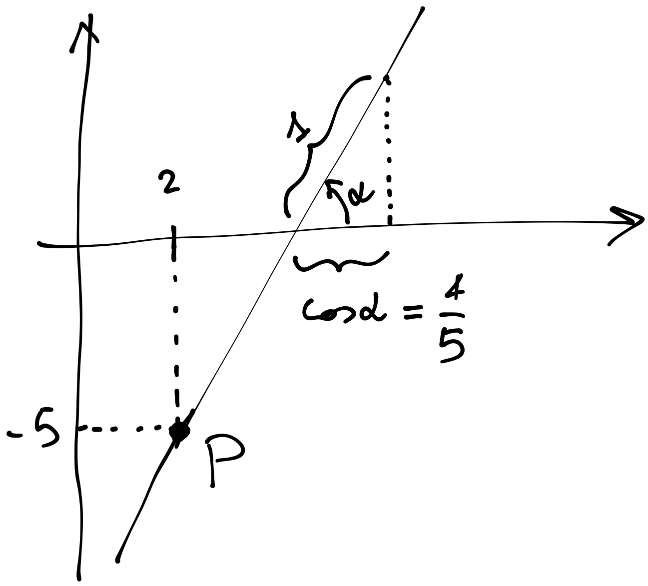


$$\boxed{m = \tan\alpha}$$

α = angolo fra la retta e l'asse x, compreso fra 0° e 180° (con la direzione + dell'asse x)



252 Trova l'equazione della retta che passa per $P(2; -5)$ e che forma con la semiretta di verso positivo dell'asse x un angolo il cui coseno è $\frac{4}{5}$. $\left[y = \frac{3}{4}x - \frac{13}{2}\right]$



$$m = \tan\alpha = \frac{\sin\alpha}{\cos\alpha}$$

$$\sin\alpha = +\sqrt{1 - \underbrace{\frac{16}{25}}_{\cos^2\alpha}} = \sqrt{\frac{9}{25}} = \frac{3}{5}$$

$$y - y_0 = m(x - x_0)$$

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

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

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

$$\boxed{y = \frac{3}{4}x - \frac{13}{2}}$$