Trig Values by Point on Terminal Side

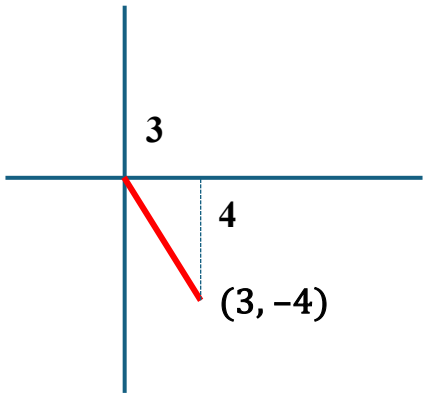
Procedure

1. Label point on graph
2. Construct a right triangle with that point and terminal side
3. Use Pythagorean Theorem to find radius
4. Use trig ratios and quadrant to find measures

Example: **If the terminal side of an angle contains the point (3, –4), find the sine, cosine and tangent of that angle.**

x = 3 and y = –4, quadrant 4

$$x^2 + y^2 = r^2$$
$$3^2 + (-4)^2 = r^2$$
$$9 + 16 = r^2$$
$$5 = r$$



$\sin\alpha = y/r \quad \cos\alpha = x/r \quad \tan\alpha = y/x$

$\sin\alpha = -\frac{4}{5}, \quad \cos\alpha = \frac{3}{5}, \quad \tan\alpha = -\frac{4}{3}$

1. If the terminal side of an angle contains the point (3, –4), find the sine, cosine and tangent of that angle.

2. Given that (–5, 12) is on the terminal side of an angle α in standard position, find the sine, cosine and tangent.

3. If the terminal side of an angle contains the point (3, –7), find the sine, cosine and tangent of that angle.

4. If the terminal side of an angle contains the point (–6, –10), find the sine, cosine and tangent of that angle.

5. If the terminal side of an angle contains the point (5, 12), find the sine, cosine and tangent of that angle.