6.4 Solving Trigonometric Equations

Ex 1 Solve for x.

(a) $4\cos^2 x - 3 = 0$

6.10

(b) $14\csc(x) + 10 = 38$ for $x \in [0, 2\pi)$

(c) $14\csc(5x) + 10 = 38$ for $x \in [0, 2\pi)$

Ex 2 Solve, (i) for all x-values, and (ii) for $x \in [0, 2\pi)$

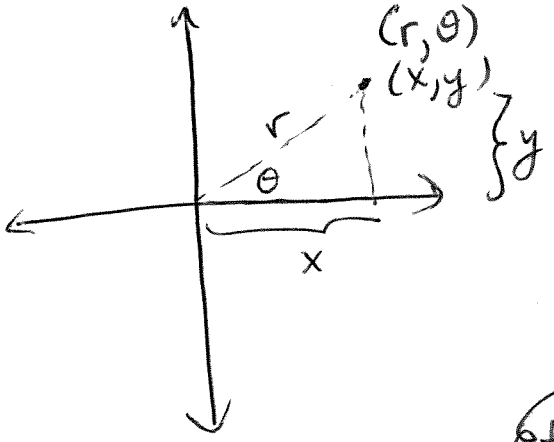
(a) $2\sin(4x-1) = -1$

(b) $3\tan\theta - 2 = 1 - \sec^2\theta$

7.2 Polar Coordinates

7.18

For any 2-d point, we can define how to get there with rectangular coordinates (2 pieces of info) or polar coordinates (2 pieces of info).



Conversions

$x = r\cos\theta$ $y = r\sin\theta$ (from polar to rectangular)	$x^2 + y^2 = r^2$ $\tan\theta = \frac{y}{x}$ (from rect. to polar)

☆ Note: There are many ways to represent same pt in polar coordinates (unless we specify to restrict r and θ)

Ex 1 Sketch polar pt $(2, 2\pi/3)$ and give 2 other ways to write the polar pt.

Ex 2 Convert $(2, 2\pi/3)$ to rectangular coords.

7.2 (cont)

Ex 3 Convert from rectangular coords to polar coords.

(a) $(-9, 0)$

(b) $(5, 5\sqrt{3})$

Ex 4 Convert $r = \sin\theta \sec^2\theta$ to rectangular coords.

Ex 5 Sketch this set of points. $\{(r, \theta) : 1 \le r \le 4, \frac{\pi}{2} \le \theta \le \frac{3\pi}{4}\}$